The Builder.

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The Insulation Resistance of an Electric Installation.

WHEN the wiring of a building is completed, it has to pass certain tests before the public supply company will switch on the current. What these tests are can only be vaguely guessed at, as the supply companies talk learnedly in their rules about insulation resistance, and yet when the consumer tries to find out what electricians mean by the insulation resistance of the wiring of a building, he will find out that it is a vague expression used in different senses by different people. He will probably be told by the consulting electrician that it is a measure of the resistance to leakage flow between the house mains; this is the favourite definition, and, being the simplest, is strongly adhered to by youthful electricians, who think they understand it. How this is measured is clearly described in a well-known work on electrical engineering, published recently, and which has been most favourably reviewed by the electrical Press:—

"All that is necessary in testing the insulation resistance of any circuit, is to connect the + and − mains (the insulation resistance between which is to be measured) to the terminals, turn the handle, and the needle at once points to the number of ohms representing the insulation resistance."

Is it to be wondered at that most youthful electricians, whether they be wiremen or apprentices of a consulting engineer, imagine that they know all about insulation resistance?

Again, if the consumer watch the inspector of the supply company (direct current, suppose) he will notice how careful he is to measure the resistance between each house main and the earth, and if this is below a certain value he will refuse to switch on the current. Insulation resistance to the supply company thus seems to mean the resistance to leakage current flowing from either main to the earth, and so back to the central station. Insurance company's inspectors, if they turn up at all (which is a very rare event), seem to follow on the lines adopted by the supply company.

The consumer is thus led to think that what supply companies mean when they say, for example, that the insulation resistance should average seventy-five megohms per lamp, is that the resistance to leakage flow from both the house mains together should be greater than $\frac{75}{x}$ megohms, where x is the number of lamps. He also learns that the test is done with a Goolden testing set, consisting of a small hand dynamo, which generates a pressure of 200 volts in order to satisfy the regulations of the Board of Trade, and an Evershed ohm-meter.

It is to be remembered that all this time the intelligent consumer is only guessing, as he is unable to get any definite information from the secretary of the supply company, and electricians and electrical books are hopelessly contradictory. He may think he has found it at last in a new copy of fire office rules, but on turning up this he finds that the insulation resistance has to be measured when all current-consuming and current-producing devices are turned off; and so he gives up the hunt for a definition, and regards electricians as a slippery and unsatisfactory kind of people.

Yet the theory of insulation testing is very simple, it is only the interpretation of what is meant by it in specifications that offers any real difficulties. To illustrate the theory we will consider a simple case. Consider a building wired to receive current from a direct current supply company. Let A and B fig. 1 (see next page) be the terminals of the two house mains, and let X, Y, and Z be the resistance between the main A and earth, the two mains A and B, and the main B and earth respectively. It will be noticed that current can flow from A to B in two ways, either directly through the resistance Y or through X to earth, and then from the earth through Z to B. Hence, if we measure the resistance between A and B by the ohm-meter we do not measure Y, but the joint resistance of Y and X+Z in parallel, *i.e.*, $\frac{Y(X+Z)}{X+Y+Z}$. This will be seen by the inspection of fig. 2, which is a diagrammatic representation of fig. 1.

It is customary to measure the resistances to leakage by an ohm-meter; and as these resistances are very high, they are expressed in megohms (a megohm=a million ohms). To do this one terminal of the ohm-meter is connected to A (say), and the other to E, a convenient water-pipe or gas-pipe being, for all practical purposes, in good electrical connexion with the earth; and the handle of the machine being turned, the needle then points to the resistance between the points A and E. This is usually assumed to be the leakage resistance of the main A to E, *i.e.*, X; but from our diagram we see that it really reads $\frac{X(Y+Z)}{X+Y+Z}$ and if $Y+Z$ is small, it may be something very different from X.

In order, therefore, to determine X, Y and Z, we should need to measure the resistances between A and E, A and B, and B and E respectively. We should then have three very difficult algebraical simultaneous equations to give us X, Y, and Z. We need hardly say that a foreman wireman does not puzzle his head trying to solve them, but assumes that his three measurements give him X, Y, and Z directly. For many practical purposes this is sufficient, but to the contractor and the consumer a knowledge of the values of X, Y, and Z is important. To find these values we can get over the mathematical difficulties by taking the following measurements:—

I. Measure the resistance a between A and E, when B is connected directly to earth by a wire. We have,

$$\frac{1}{a}=\frac{1}{X}+\frac{1}{Y} \quad .. \quad .. \quad (i)$$

II. Measure the resistance b between A and E, when A and B are joined by a piece of wire. We get

$$\frac{1}{b}=\frac{1}{Z}+\frac{1}{X} \quad .. \quad .. \quad (ii)$$

III. Measure the resistance c between B and E, when A is put directly to earth. Then

$$\frac{1}{c}=\frac{1}{Y}+\frac{1}{Z} \quad .. \quad .. \quad (iii)$$

From the equations (i) (ii) and (iii) we easily deduce that $\frac{2}{X}=\frac{1}{a}+\frac{1}{b}-\frac{1}{c}$

$$\left.\begin{aligned} \text{Or } X&=\frac{2abc}{bc+ca-ab} \\ \text{Similarly } Y&=\frac{2abc}{bc-ca+ab} \\ \text{And } Z&=\frac{2abc}{-bc+ca+ab} \end{aligned}\right\} \quad .. \quad .. \quad (iv)$$

For example, suppose we find that the readings for the three operations, I., II., and III. are $3\frac{1}{3}$, $\frac{10}{11}$, and $\frac{5}{6}$ megohms respectively, then by formulæ (iv.), the insulation resistance of the main A to earth is 10 megohms,

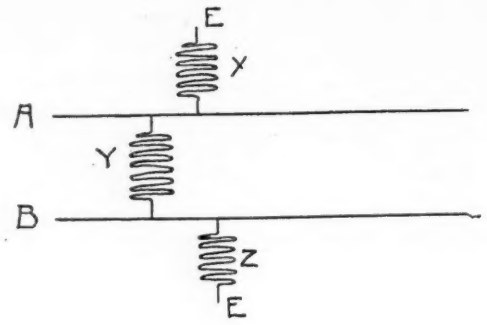

Fig. 1.

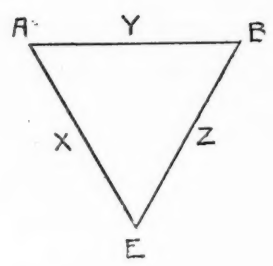

Fig. 2.

the insulation resistance of the main B to earth is 1 megohm, and the insulation resistance between the two mains is 5 megohms. The ordinary test would have given the insulation resistance of A as $3\frac{3}{4}$ megohms, of B as $\frac{1}{4}\frac{5}{8}$ megohms, and between A and B as $3\frac{1}{16}$ megohms.

It may be objected that the finding of the accurate values of the insulation resistance is a matter of very little importance, and is hardly worth the slight extra calculation involved. But this is a quite erroneous view to take of the matter, although it is the usual one. The numerical example worked out above shows that the numbers ordinarily given may be 200 or 300 per cent. out, and this is a matter of great importance when the current is taken from a company supplying on the three-wire system. Most electricians think that the pressure between the middle wire of this system and earth is very small, and would be surprised to hear that it is often eighty or ninety volts. We have had no practical experience with a five-wire system, but should not be much surprised to hear that the pressure between the middle wire and earth often approached 200 volts, and in this case the pressure between one of the outer mains and earth would be getting on for 400 volts. Surely it is important that the house main, which is connected on to the high-pressure supply main, should have a high insulation resistance. It is unnecessary to urge the necessity of good insulation when there is a 200 volt system of supply, as the company's officials are painfully nervous about the possible effects of a 400 volt pressure to earth.

When superintending recently some measurements on the insulation resistance of an electric installation, the electric current for which was supplied by a London company, we found that the pressure between one of the company's mains and earth was + 192 volts, and between the other and the earth + 88 volts. Of course, this may have been due to abnormally good insulation of the positive outside main and the middle one, but whether the company are to blame or not, it was evident that one house main had to withstand a pressure to earth of 192 volts. Having found out by the method given in this article which of the mains had the best insulation resistance, all lamps being in their sockets, and all the switches turned off, we naturally connected this main to the high pressure supply main. As the company always put their meter on the high-pressure house main, it is obvious that any accidental leakage from the other house main to earth must be a dead loss to the company, besides being a source of danger to the consumer. Leakage currents are nearly always microscopic, and have no effect on the meter, except in special cases where the wiring has been damaged through gross carelessness or tampered with by mischievous clerks. Although the insulation resistance of any particular building supplied by the company may be, comparatively speaking, high, yet the insulation resistance of the whole network of wires joined to the station is often painfully low. Leakage current is not only an expensive item in the working, but as it varies from day to day, it makes accidental leaks, provided they are not dead short circuits, hard to locate, and a serious leak may go on for days without being discovered.

When the tests show that the insulation resistance of a building is unsatisfactory, expert advice is usually necessary to find out where the fault is. We have found switches with an insulation resistance of less than 10,000 ohms each offered for sale. It would not need many of these switches in an installation to produce perpetual motion in the meter. It is a very false economy to use inferior material for large installations. That dishonest workmen aided and abetted by eager consumers manage to cheat the company's inspector by disconnecting the faulty floor whilst the tests are being made, shows how exceedingly careless some people are of their own interests. It is customary for contractors to run down insulation tests, and to point out that they are no guarantee for certain dangerous defects in the wiring. Good work and good material is held up as the best guarantee of everything being all right. It is no doubt a good guarantee, but no electrician would like to switch on current to an installation without having first tested the insulation resistance of the good work and the good material. We came across electricians a few years ago who relied on fuses saving the building if there was a fault anywhere, but this class of persons got one or two nasty frights on 200-volt installations, and they are now convinced of the importance of insulation tests.

In conclusion, we would point out that to test the insulation resistance of the wiring in a building can easily be done and requires no special knowledge. In making the tests it is most important that all the lamps should be in their sockets and all the switches turned off, and, of course, the house mains disconnected from the supply mains. A testing set can be hired from several testing institutions in London for a few shillings, and with the help of the foreman wireman three readings can easily be taken with it by the architect or the consumer in the way we have described, and a very fair idea can be obtained of the electrical quality of the contractor's work. It has to be remembered that the insulation resistance is a variable quantity, and often improves greatly when the building gets drier, so no great importance is to be attached to the absolute values of X, Y, and Z, so long as they are sufficiently high to prevent the total leakage current being greater than the hundred thousandth part of the total working current.

For alternating current supply the insulation resistance has to be tested in a somewhat similar way, care being taken to disconnect the wiring from the secondary terminals of the transformer, and good insulation from earth is just as important as with direct currents.

MORTAR FROM PETERBOROUGH CATHEDRAL.

WITH a view of extending his researches into the composition of the mortar used in the construction of our old castles and abbeys, also with a view of obtaining reliable information upon a subject having an important bearing upon the proposed restoration of a building which has lately attracted much public interest, the writer was desirous of obtaining specimens of mortar from the west front of Peterborough Cathedral.

By the courtesy and with the assistance of the contractor, Mr. John Thompson, two samples were obtained.

The first, marked A, was taken out from the bed of the ashlar of the gable now being taken down; it was very soft, easily broken, and evidently of poor quality.

The second, marked B, was taken out of the rubble walling about seven to nine inches from the face of the spandrel, and apparently consisted of loose concrete of inferior make.

Average samples of each were prepared for analysis and the results were as follows:

	A	B
Water (lost at 212 deg. Fah.)	1·56	·64
Loss on ignition	3·33	2·20
Oxide of iron	8·34	11·54
Alumina	1·21	1·01
Lime	28·25	25·14
Magnesia	·32	·23
Potash	·23	·08
Soda	·23	·29
Sulphuric acid	·20	·10
Carbonic acid and loss	20·88	19·57
Silica soluble in alkali	3·55	3·45
Insoluble silicates	31·90	35·75
	100·00	100·00

On comparing the above results with those in previous articles, published respectively in the *Builder*, June 18, 1892, and February 11, 1893, it will be noticed how very inferior the general character of the mortar must be.

The actual percentage of lime is certainly very high, but this is largely due to the calcareous nature of the small stones and gravel, consisting largely of cretaceous chalk, associated with the original mortar.

This is essentially an instance in which the high proportion of lime is no indication of the quality of the mortar, and, as such, is an interesting and useful illustration.

The next important feature to notice is the unusually large amount of oxide of iron, indicative of the soft and ferruginous nature of the sand and gravel.

But perhaps the most important point to

observe is the deficiency of soluble silica, or silica in the form of silicate soluble in a 10 per cent. solution of caustic soda.

It is silica in this condition that forms the important element in cement, and according to the writer's investigations, it is the respective richness in such soluble silica that constitutes the chief difference in the quality of certain kinds of lime for building purposes.

Thus chalk lime contains only 1 or 2 per cent. of soluble silica, greystone 9 to 10, Aberthaw 15, while the best Portland cement contains as much as 20 to 22 per cent.

On applying this test to the mortar found in certain old castles and abbeys, already reported in the *Builder*, the following results were obtained :—

Caerphilly Castle	contained	9·85	per cent.
Corfe Castle	,,	7·50	,,
Whitby Abbey	,,	8·20	,,
Tintern Abbey	,,	6·20	,,
Glastonbury Abbey	,,	6·10	,,
Fountains Abbey	,,	5·75	,,
Bolton Abbey	,,	5·65	,,
Crowland Abbey	,,	5·01	,,
Carisbrooke Castle	,,	4·35	,,
Raglan Castle	,,	4·10	,,
Tattershall Castle	,,	3·05	,,
Rochester Castle	,,	1·60	,,

The mortar from the west front of Peterborough Cathedral, therefore, according to chemical analysis, although rich in lime, is essentially of inferior quality, and being very brittle would not be capable of standing much lateral pressure.

In many respects it closely resembles the quality of Gundulf's mortar in Rochester Castle, which, though containing 28·67 per cent. of lime, is admittedly of very inferior quality.

JOHN HUGHES, F.I.C.

NOTES.

St. Saviours, Southwark.

WE have given so much information and illustration on different occasions in regard to the new nave of St. Saviour's, Southwark, that it is hardly necessary here to do more than refer to the fact of its formal opening on Tuesday last by a special short service, and to congratulate Sir A. Blomfield on the practical completion of one of the most important pieces of modern church building. Now that the whole length of the church can be seen the interior has an exceedingly fine effect, and the new work in the nave combines well with the noble architecture of the choir ; as well, at all events, as modern work can be expected to combine with old. Although we are not much in favour of reproductions of Gothic, this seems to be one of the cases in which *design* has to be considered; for it seems certain that only a continuation of the building in the same style of architecture could have succeeded in making it as much a harmonious whole as it now is. We confess however that, in spite of what may be said in favour of the continuous vista, we should have preferred, both for architectural and musical reasons, to have seen (and heard) the organ in the old cathedral position under the tower arch; no position has ever been so good for architectural and musical effect combined. The organ, a very good one (by Mr. Lewis) as far as it goes, would then perhaps have sounded sufficient for the building; as placed, it is lamentably insufficient for a great nave service. The church was crowded to excess, it is to be feared not merely for either religious or architectural interest, but because it was announced that Royalty would take part in the service. That the Prince of Wales should attend a formal service to open what is practically a new Metropolitan cathedral was fitting enough; but that a number of the congregation should stand on the seats during the singing of the grand final hymn, "Now thank we all our God," to look at the Royal procession passing down the nave, was a proceeding which struck us as unseemly and disgraceful in the highest degree, the more so as those who acted in this way were persons admitted by privileged tickets, and therefore presumably belonging to a class who might have been expected to have more sense of reverence and propriety of demeanour at what was professedly at least a religious service.

The City of London Sewers Bill.

ATTENTION was properly called last week in the House of Commons to the City of London Sewers Bill, which was read a second time, and by which it is proposed to transfer to the Corporation of the City of London certain powers now vested in the Commissioners of Sewers, such as those under the Local Loans Act and the Valuation of the Metropolis Act, 1869. We think that those members who urged that this matter should be dealt with by a public, and not by a private, Bill were right. It is essentially a public matter, and, further, it is most inconvenient that legislation of this kind should be contained in private Acts of Parliament. That it is desirable to concentrate the authority over the area of the City in one body we can hardly doubt, and, therefore, there can be no objection to the details of the Bill. But some definite Parliamentary rule should be laid down, and adhered to, in regard to the inclusion of such legislation as this in private Bills.

Natural History Museum, Paris.

M. DUTERT'S new building for the "Museum d'histoire naturelle" in the Rue Buffon, Paris, is now complete in portions, and some part of the palæontological collection has already been installed in it. The entire block, when complete, will be 92 mètres long and 27 mètres wide. Externally the appearance of the new buildings is simple but dignified. A few pieces of sculpture decoration relieve it here and there. Above the entrance door of the principal pavillion M. Gardet has carved, on the keystone, an eagle with outspread wings. M. Allar has executed some sculpture in the pediment, symbolising the three kingdoms of Nature. At the first floor level are a series of basreliefs in marble and bronze. Those in marble are the work of M. Tony-Noël, M. Lanson, and MM. Maniglier, Fagel, Lemaire, Carlier, Gauquié, and Bayard de la Vingtrie. Those in bronze are by MM. Barrias, Frèmiet, Marqueste, and Couton. Among the latter, the "Horse Tamed by Man," by M. Marqueste, and the "Nubian Killing a Crocodile," by M. Barrias, are particularly successful. On the consoles dividing the bays are sculptured figures of animals and busts of celebrated naturalists, arranged so as to produce a kind of decorative grouping.

Excavations at the Acropolis, Athens.

THE "Αστυ" reports that in the course of excavations carried on by M. Kabbadias on the north-west slope of the Acropolis, inscriptions have come to light which prove that the cave usually pointed out as the Grotto of Pan was in reality sacred to Apollo Hypakraios ; so that, in fact, both the apertures, long visible from below, belong to Apollo's sanctuary. In front of one of them—the most easterly—has been found a quadrangular space, hollowed in the rock, and this, probably, once held the altar of which Euripides speaks in the "Ion." In the larger of the two caves are traces of niches where votive offerings were placed. The excavations of the Archæological Society have brought to light two other larger and deeper caves close at hand, and these it is supposed are the real Grotto of Pan. Euripides speaks of the sanctuary in the plural, the "Seats of Pan," "The Shepherd Caves," and these caves were "neighbour" to the Hollow Rocks, where Apollo dwelt. In fact, the case seems to stand thus : The whole region of the Makrai (Long Rocks) was from early days the primitive seat of Apollo Pythios. It was from this sanctuary, not from the Pythian near the Ilissus, that —as Dr. Dörpfeld long ago pointed out—the Pythiastai took their observation of the lightning from Harma. Then when, on the introduction or revival of the worship of Pan after the battle of Marathon, a sanctuary was needed for the shepherd god, a part of the precinct of Apollo was made over to him. To the north-east of Pan's real cave a portion of a flight of steps has been dug out. It continues the staircase made out by M. Kabbadias in 1886. The next discovery we may look for is of the Anakeion, the precinct of Castor and Pollux, which must be close by.

The Hellenic Society.

LAST Monday, at the second general meeting of the Hellenic Society, Professor Percy Gardner read two short papers, one of which, on "A Stone Tripod at Oxford" was of some architectural interest. The tripod was a gift to All Souls by Mr. Lefroy, and, though it had been noted and described by Professor Michaelis in his "Ancient Marbles of Great Britain," it had not received the attention it deserved. The design consisted of a pedestal with three women figures of archaic type, each standing on a lion, the tail of which each woman held in her hand. The monument belonged to a class, of which other specimens are now known, *e.g.*, one at Olympia, others at Delphi and in the Central Museum at Athens. Professor Gardner suggested that the idea of a tripod support may have led to the triform figures of divinities, *e.g.*, of Hecate. He further stated his belief that the type of woman standing on a lion had become purely architectonic, and cited the analogy of the lion-supported column. In his second paper Professor Gardner discussed the now famous sculptured basis of Mantinea, the design of which is attributed to Praxiteles. He controverted Dr. Waldstein's theory that a slab had been lost and that there were nine figures of Muses. Dr. Waldstein, in the discussion that followed, maintained his original view. Both these interesting papers will shortly appear in the journal of the Society.

Plan of the Cistercian Abbey.

ON Wednesday evening Mr. W. H. St. John Hope gave an exceptionally excellent and interesting lecture to the St. Paul's Ecclesiological Society on "The Plan and Arrangement of a Cistercian Abbey." The lecture was illustrated by a large plan

of Fountains Abbey, and smaller ones of Kirkstall and Buildwas. Basing his remarks on documentary evidence, Mr. Hope traced the uses and purposes of the various portions of a Cistercian plan from the east end of the church, following the series of buildings round to the west end. Among special points elucidated were the use of the recess in the east wall of the cloister near the church (often broken through at a later date) as a book store for books of recreation or "edification," a use not unnaturally connected with the use of the adjoining north walk of the cloister as a day-room; the calefactory or "warming-room" (sometimes mistaken for the kitchen); the use of the *misericorde* as in fact a room for indulgence in better fare than the strict rule allowed in the refectory proper; the probable position of the infirmary for the *conversi*; the gradual (and unlawful) extension of the abbot's residence into a luxurious house; the extra-mural chapel for women to hear mass, &c. No positive opinion, however, was offered as to the vexed question of the special use of the usual long room south of the chapter house (parallel with the east cloister walk), but it was suggested that it was appropriated to novices; a suggestion, however, which seemed to be based only on the fact that no other place could be found for them. Mr. Hope lectured for nearly an hour and a half without any one finding it a minute too long—a rare thing to say of a lecture.

Arlington-street, Piccadilly.

WE read that the Marquis of Granby has lately purchased the house, No. 16, which Lord North acquired upon the death of his father, the late Colonel John Sidney North, who lived there during many years. The house, on the street's west side, was formerly Lord Gage's, and then the Duke of Rutland's, being that wherein the Duke of York died on January 5, 1827; it was afterwards occupied by Lord Dudley. In the Park—then known as Upper St. James's Park—behind the house was fought the duel between Mr. Pulteney, since Earl of Bath, and John, Lord Hervey, son of the Earl of Bristol, at an early hour in the morning of January 25, 1731, as is recounted by Thomas Pelham in a letter to Lord Waldegrave. Some say that the encounter (with swords) took place in the garden of the house we mention.

Electricity Supply at Brighton.

THE report of the Borough Electrical Engineer to the Brighton Corporation, which has just been adopted, is a very satisfactory one. The "electric lighting business," as Mr. Wright calls it, is in a very flourishing condition, and justifies his policy of giving to those consumers who produce the profits rebates proportional to them. The success of the electricity supply also benefits the general body of the ratepayers, since they get the electricity consumed by the street lamps at a much cheaper rate. For the coming year the Brighton Corporation are going to charge 7d. per unit for the first hour, and 1½d. per unit for all electricity consumed afterwards. At this rate it will pay any manufactory in Brighton which generates its own motive power, whether by gas or steam engines, to get its supply from the Corporation. Mr. Wright also anticipates a profitable demand for charging motor-car batteries and for electric traction in connexion with the seashore tramways. It is true there is a little grumbling by those thrifty consumers who yet like a little mild ostentation occasionally, and so have many lamps connected. They must suffer considerably when such an accident as turning on all the dining-room lamps before the drawing-room ones have been turned off happens, since their quarter's bill is charged on the maximum demand basis. Still, from the point of view of the general prosperity, they are hardly worth considering. If the electric-lighting supply at Brighton was in the hands of a private company, its shares would be at a considerable premium. The ratepayers are to be congratulated on having a man of the scientific eminence and business capacity of Mr. Wright as their electrical engineer.

Tramway Traction.

THE lengthy report of a committee of the Sheffield Corporation on tramway traction which has just been issued, is very similar to the reports recently made by other municipal committees. They sum up strongly in favour of electric traction on the overhead system, and they see great advantages in having span wires suspended from house to house across the streets to support the trolley wire. Fire-escapes, they say, can be made to run horizontally, and the firemen, as at Hamburg, can be provided with indiarubber gloves and shears to handle and cut the trolley wire if necessary. The loud-sounding bells and brilliant head-lights of the cars impressed the deputation, and on some of the suburban routes they travelled at a speed of twenty-five miles an hour; a rather dangerous speed, which is said to have caused some accidents. We are informed that the surface contact system in Paris is in quite an experimental stage, but that it is being considered by the Birmingham Corporation. This was the only surface contact system which the deputation saw; a visit to America doubtless, as with the Glasgow Committee, will be necessary before they can give a final opinion. They were told in Brussels that great improvements were being made in the manufacture of motors, that by the substitution of a new kind of armature, the efficiency of a 15-horse-power motor is increased to 25 horse-power, leaving it to be inferred that still greater horse-power would be obtained in the early future. What nonsense this is will be seen by remembering that a good traction motor converts 85 per cent. of the electric energy it receives into mechanical energy.

Dudley Gallery Art Society.

THE exhibition of water colours by the members of the Dudley Gallery Art Society, at the Egyptian Hall, contains a rather considerable proportion of architectural subjects, of very unequal merit. St. Paul's, against which artists seem to have a kind of spite, is illustrated in two drawings, by Mr. Burgess (13) and Miss Nesbitt (278), in both of which the dome, and in the latter of which the western towers, are very badly drawn and misrepresented in effect. Mr. Medlycott's "Santa Maria della Salute" (49) is also very bad in drawing and perspective; domical architecture being a constant source of failure with painters. The latter artist succeeds better with Gothic work, as is apparent in his "Rouen" (85) and the sketch of "Cologne" (145). Miss Margaret Bernard exhibits a broad freely executed view of "St.-Pol-de-Léon, Brittany" (132) and the "Market-place, St. Lo" (121), the latter a little too obviously under the inspiration of Mr. R. W. Allan. Mr. Finn's "Christ Church Gateway, Canterbury" (6), though rather woolly in texture, is good in drawing and original in colour, and Mr. Newton Benett's "Crown Inn, Dorchester" (3) is in every way admirable. Among landscapes may be noticed Mr. David Green's "Breakers" (53), a fine broadly executed study of sea, and his "Cloud land" (74); Miss Rose Douglas's "The Ferry, Walberswick" (79), a beautiful little work; Mr. George Marks's small and delicate works, especially "A Berkshire Village Street" (266); Mr. Sidney Evans's "Bolton Abbey" (253), effective in an old-fashioned style; and Mr. Claud Hayes's "Road to Portsmouth" (225), a fine study of moorland and sky. There is rather a preponderance of works, including some of the larger and what are meant as the more important ones, which are sensational and violent in effect rather than truly artistic.

Minor Exhibitions.

MR. AUMONIER seems to have been induced to get up a collection of no less than fifty-eight sketches of the old Chain Pier, Brighton, which certainly did not merit so much illustration, but which we presume are expected to have a market value since the demolition of the pier. They are exhibited at Messrs. Dowdeswell's. The best (as might not unnaturally be expected) are those general views in which the element of landscape effect comes in, such as Nos. 29, 34, 35, and 38. "The Last of the Old Pier" (36), showing the last portion of the staging and beams left standing in the sea, is effective, and the artist has also found some picturesque effects in the view of the structure from below (25 and 44), but on the whole more attention has been given to the pier than it was at all worth, except, as observed, from a commercial point of view. Mr. Wallace Rimington's collection entitled "Wanderings in Italy" (Fine Art Society's Gallery) deals a good deal with architectural subjects which however, though well drawn, are rather weakly treated for the most part; but the landscape subjects exhibit a good deal of originality in style and colour, as for instance "Torcello" (2), "A Town of the Lagoons" (111), "Orvieto" (132), and "Siena" (6). Mr. C. E. Holloway's collection of water-colours (chiefly) at the Goupil Gallery are the work of an artist of some originality and power in broad and rough sketches, with an almost scandalous contempt for detail; "Waterloo Bridge" (5) is admirable in general effect, but does not gain from the slovenly way in which the architecture of the bridge is indicated; "Clacton Sands" (20) and one or two others are happy effects of light and colour; but in many of the supposed sea sketches the sea is more like mud than water, and "The Lido" (6) and "Chioggia" (9), with the bits of white building dotted on in body-colour, are rapid tricks of effect rather than genuine sketching. The collection as a whole impresses one as of a pretentious and superficial cleverness.

The Sisley Exhibition, Paris.

M. ALFRED SISLEY is exhibiting at the Georges Petit Gallery 150 pastels and paintings which form a very good summary of his work, and which have excited great enthusiasm in the art world of Paris.

M. Sisley's effects of colour are startling at times, but he has an exceptional power in giving the effect of bright sunlight in scenes of full summer, especially in his later works; his earlier productions, before 1876, are in a more subdued style, and belong rather to the school of Corot. These earlier works are however really the finest, though not the most astonishing; there is a truth of atmospheric effect and colour in them which we hardly find in the artist's later works.

The late Mr. G. P. Boyce.

ARCHITECTS should pay their tribute of respect over the grave of G. P. Boyce, one of the most beautiful and accomplished of water-colour artists in dealing with subjects in which old buildings form an important element. Unlike some other recently deceased members of the "Society of Painters in Water Colours," Boyce had not been able to keep up painting almost to the time of his decease; failing health had incapacitated him from exhibiting for some years past, and his work had perhaps dropped out of the memory of the younger generation. But those who can recall a long series of exhibitions in the Water-colour Society's rooms will retain a vivid recollection of Boyce's beautiful and perfect little drawings of quiet English landscape in combination with building, in which such an object as an old barn, or even an old wall, was painted in such a way as to make one love it, and certainly as if the artist loved it. In treating such subjects he showed the highest finish, the most perfect verisimilitude, the most delicate perception of local colour, without ever becoming hard or mannered. His *forte* was buildings, but his foregrounds and skies were also well worth study, and he succeeded in preserving aërial effect along with the most painstaking minuteness of detail. He was an artist of exceptional style and talents, and no one can be said to have exactly filled his place.

THE ADVANCEMENT OF ARCHITECTURE *:

WITH SOME REMARKS ON THE STUDY OF GOTHIC.

THE west fronts of the Gothic cathedrals are the best instances to be found of the Gothic architects' skill in composition, for they presented the largest surface to be dealt with unhampered by the necessity of resisting the thrust of the internal vaulting, the west towers acting as huge buttresses; and even when there are no walls of the towers inside but only piers, as in Notre Dame at Paris, the weight of the towers stiffened the piers that bore the thrust of the nave arches, and the vaults of the nave, aisles. and triforium. The position, too, of the west fronts from there being a large open space in front of them, encouraged the architects to concentrate on them their greatest efforts and to display the greatest richness; and as they contained the principal entrances, in which grand processions entered or from which they emerged on solemn or festal days, they may be looked upon as combining all the reasons for care and for display.

I begin with the three cathedrals of the Isle of France, of Picardy and of Champagne, Notre Dame of Paris, Notre Dame of Amiens, and the Cathedral of Reims, because the main motive of each is an arcade of kings, and, in my opinion, that of Paris very far exceeds the others in perfection of design. It is plainer, simpler, and more vigorous than the other two. The two others have more the air of beautiful women decked for a ball, while that of Paris looks like a warrior caparisoned for war.

In most cathedrals there is the Gothic device of horizontal connexion, by running up a door head or a canopy into the next story, as Wren got his horizontal tie to the bell towers of St. Paul's by running his lower portico into them; but the genius of the architect of Notre Dame made him keep his three stories separate. If you will take the trouble of laying a piece of paper above the balustrade of the ground story, you will find it makes in itself a most admirable design, not for a cathedral, but for some vast hall. Push the paper up to the top of string of the first floor, you have still a tolerable composition; push it up again to the balustrade of the second floor and you have a better design. Remove the paper and the cathedral is complete; the huge doublet windows of the towers seem to bring the whole into scale, and you have no doubt as to the destination of the building.

The architect knew the value of plainness to set off decoration and repetition. The flat splays of the doorways with their seven lines of ornament to each, would have hardly borne the carving of the tympanums, lintels, and central supports, had it not been for the mass of plain stonework in the buttresses and spandrels; by the canopied niches in each buttress he introduced an ornamental note, to prevent the ground story being divided into three separate slices; in the same way, in the gallery of kings, he brings forward each niche on the buttress, and these, too, look a trifle wider than the others, thus preventing the repetition from being monotonous; and by the flat arches of the lower trefoiled arcade he keeps a pretty equal amount of shade round each figure, while the smooth perpendicular shafts contrast well with the arms and sceptres of the kings and the pleats of their drapery; and this arcade makes a noble crown to the story, being about a quarter of the space below it, and binds the whole front together, above the solid part, in a way that is not only unique, but a master stroke.

The whole front, as you see, is divided into three unequal bays by buttresses, and what we may call the first floor has each of its three spaces nearly square. A very plain rose window beneath a circular arch fills the centre compartment and two blank trefoils adorn the spandrels above the semicircular arch; a pointed arch spans the two side spaces, each filled below with doublet windows with a blank rose in the solid head above them, and in the middle of each spandrel above the arches are blank trefoils; this story is rather heavy, and contrasts well with the light balustrade and the gallery of kings below and with the open arcade above, which again ties the whole front together at the springing of the towers. Above rise the towers with their grand doublet windows with deeply-splayed jambs, while floral cornices crown the towers and have slight pierced parapets above them. At the outer corner of the back of each tower the roofs of the circular staircases just peep over the balustrade, and between the two towers the top of the thin central spire looks like a standard from which the banner has been torn. The whole front to the springing of the towers is but a trifle higher than its width. You may remark that the height of each main arch of the top arcade is about twice the height of that of the arcade of kings, which is also about a quarter of the height of the windows of the tower. These towers are 204 ft. high, 2 ft. higher than the Monument of London. The composition of this west front of Notre Dame is, in my opinion, the masterpiece of the west fronts of French cathedrals—

"Simple, erect, severe, austere, sublime."

Amiens is also divided vertically into three divisions, only the centre space is much larger than the side ones; measured by the statues in the gallery of kings, there are eight in the middle bay and five in each of the sides.

The bottom stage of each buttress that goes up to form the side of the towers projects so as to form deep porches, and the buttresses widen out so much in the lower story that the whole of the archivolts of the porches are on them, and the tops are turreted, and have spires, the finials of which run up into the gallery of kings. There are gables over the pointed arches of the porches, while behind the gables of the side porches are windows that light the aisles. The ground story is much higher in proportion than that of Notre Dame, and instead of the great rose-window being in the first floor, it is above the second floor, and I must remark that the top of the gallery of kings, most unfortunately, cuts off the bottom of the rose, even when you stand with your back at the extremity of the Parvis. The first floor consists of an arcade of four arches over the middle doorway, and of two under each tower; and each arch is subdivided by a shaft in the middle with trefoiled arches, and in each head there is a circle with a quatrefoil in it; above this is the gallery of kings. Standing between the shafts, which support high trefoiled arches, are the kings—eight in the middle bay and five in the side bays, as well as one in a niche on the face of each buttress. These niches are canopied, the canopies running up on the buttresses of the towers to just above the middle of the lower windows. In the centre bay of the third story is the rose-window filled with late tracery of kaleidoscope pattern, and on either side there are stepped doublet windows in the bottom of the tower; the opening of each window is about four times its width. Above is another story of tower with doublet windows, but of different dates, with the north tower higher than the other; and between the towers, and running up to about half the height of the north tower, is an open arcade. The north-west tower is 223 ft. high.

When the whole of these porches are in shade, they form, as at Soissons, the great and striking feature of the west front, although marred at Amiens by the stone fringe round the arches. The masons deserve as much praise for doing them so nicely, as the architect deserves blame for spoiling, by this trivial device, what would otherwise have been an impressive and dignified effect. All the architectural features up to the springing of the towers are blurred by being overlaid with floral ornament, which, like that inside, errs on the side of over luxuriance; while the gallery of kings is spoiled as a feature, by the architect not keeping enough shade round the figures, and by the head of the arcade having too much luxuriant foliage: to put sculpture higher than need be is a colossal blunder. The two adjacent stories, viz., the arcade and the gallery of kings, are too nearly equal in height to look well, while the two stories of windows in the towers, of almost the same height, diminish their effect and the junction of the rose window, and the open gallery above it with the towers, almost destroys the idea of their being towers, for there is no striking contrast between the horizontal lines of the front and the vertical lines of the towers. The photograph, unfortunately, does not show the masses of shadow in the porches which produce the best effect.

The vigour of Notre Dame contrasts favourably with the fronts of Amiens and Reims, in both of which the gallery of kings makes no striking feature, and at Reims the canopied tops of the king's gallery is even more vague than a Saracen parapet. The façade lacks the strong horizontal lines of the cornice which make the composition of Notre Dame so vigorous.

Reims is generally held to be the finest of all the French cathedrals, and its west front is one of the richest, without having altogether lost all its vigour. For, with the exception of the vague line at its top, the strongly marked side windows of the first floor, and the long slits in the towers, form a useful corrective to its over softness, but the vigorous note of the first floor is echoed in the towers. Like Notre Dame and Amiens, it is divided by buttresses into three compartments that run up to the base of the towers, and the relative space between these may be measured by the gallery of the Kings, the centre division containing seven arches and the sides four each, exclusive of the statues on the buttresses. The front is divided into three stories in height, from the ground to the springing of the towers. On the ground are three deeply recessed portals with tall gables; the two end buttresses beyond have arches on their face, with gables over, making the tops of them simulate doorways; the gable of the middle portal runs up to the centre of the rose window; the gables of the two side ones just run into the windows above, and the last gables end at the string of the ground story. On the first floor the buttresses have little columned ædiculæ, with statues in them surmounted with spires, whose finials run up to the feet of the Kings in the gallery above. In the middle space is a pointed arch, with a rose window beneath it, some 41 ft. in diameter, looking like a huge plate in a tray of the *vesica piscis* form; under the towers on the same story are two gabled windows on each side, each window having a centre mullion and a traceried head; this story is crowned by a well marked string, carrying an open balustrade in the centre part. The story above is the gallery of Kings. This consists of an arcade, in each arch of which there is a statue. There are four side arches and seven in the middle. As these arches have traceried heads, the upper part looks, at a distance, like machicolations, for, as at Amiens, there is not enough shadow round the figures to detach them properly, and

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* Being the third Royal Academy Lecture on Architecture this session. Delivered on the 1st inst. by Professor Aitchison, A.R.A.

the Kings and columns make a wide blurred band; the buttresses in this gallery have similar arcades on the face and sides of the buttresses, and the whole arcade is canopied, and over the three centre ones there is a sharp gable, but the tops of the canopies make a hazy line instead of a firm one. Each face of the tower consists of a long window with a centre mullion and a traceried head, and there are projecting polygonal turrets at the angles pierced with long narrow windows on each face, and the spires and pinnacles have perished. It is a pity that Mr. Gossec has not given in his monograph the original spires, of which I am told a drawing remains.

I must revert to a few of the peculiarities that mark the porches. The gables are very steep so that between the apex of the archivolt and the raking cornices of the gables there is room for sculpture; the north pediment has the Crucifixion, the south the Last Judgment, and the middle one has the Coronation of the Virgin. On the cornices of the central gable canopies run up in steps to the top, looking like the stalactite work of the Saracens, or at a distance like a flock of doves that have settled there.

The portals are so high that windows are inserted above the lintels of the doorways, the window in the centre is a rose. Inside towards sunset the effulgence of the stained glass in this rose window is very striking. I may mention that the clear opening of the central portal is 52 ft. high and 20 ft. wide, divided by a central pier on which is a Virgin and child, and the doorways themselves are 20 ft. high. At the level of the door-heads there is a continuous string of canopies that runs right across all the buttresses, which is reasonable enough in two of them as they have figures beneath, but on the two end buttresses that have no statues beneath them, though there the canopies are of slight projection.

As a monument of barbaric grandeur it surpasses everything I have seen in Europe, for I have never been in India, but as a purely architectural composition it falls far short of Notre Dame. In the case of each of these three cathedrals I have merely given you my own impression on the merits of the composition, but in the actual edifice we are as much affected by the size as by other qualities. As architects we are still more affected by them as wondrous masterpieces of construction, and that, too, effected by architects straitened for means and surrounded by every difficulty.

It may be as well to speak of some of the late Gothic work before I leave France; and, as I have told you on former occasions, in criticising buildings I always endeavour to speak only of what I have seen—second-hand admiration or blame is, I think, of very little use. You can, as the astronomers say, allow for the personal equation of the observer; but you cannot do this if you do not know who the critic is.

The Church of St. Wulfrand, at Abbeville, is said to be due to Cardinal Amboise, by whom it was founded, and it is said to have been begun in 1488, but not carried up far till early in 1500. It consists of two stories, with twin towers above the second story. The ground story consists of three portals, only divided from one another by canopied buttresses. The portals are not very deeply recessed, but of the utmost elaboration; and the central portal is so lofty that it has a rose window over the lintel. The tracery of this rose is, however, ugly. From the archivolts of the portals spring gables full of tracery, the two side ones stopping at the string, and the middle one running up to more than half the height of the window above, the whole of the space between the buttresses and the gables being arcaded so as to form minute panels in two stages.

Above the ground-floor string is a pierced parapet to protect those in the wide gallery above, so that the buttresses at the end of the towers are of great projection. In the middle compartment of the first floor is a large pointed west window nearly filling the whole space between the buttress, and with the top of the window treated as a rose; and the label above the archivolt is carried up and finishes against a single pinnacle above the parapet attached to the gable behind. The front consists of a canopied niche containing the Virgin and Child. All the space between the first-floor window-head and the string is arcaded in narrow panels. Under the towers are twin doublet windows filled with louvres. Above the windows the ground is panelled, but the plain masonry is left below the sills, with a little window below the sill, and a doorway below in the north one. These doublet tower windows have no architectural relation in height with the centre window. Above the string is a pierced parapet to a narrow gallery. Above the parapet are two towers, having twin doublet windows filled with louvres. These windows are rather taller than the lower ones, with canopies and panelling between the heads and the cornice. Each tower has a floral cornice, which is capped with a pierced parapet with standards at the angles and in the middle. Both towers have octagonal outside staircases, whose tops are steeply roofed, and form twin angles to the towers.

It is a striking monument of exceeding richness and elaboration, and if it were not for the curious position of the lower tower windows it would be an effective composition.

The centre portal of the west front of Rouen Cathedral and the part above, as well as the upper part over the side portals, is said to have been built in the days of Cardinal Amboise, between 1509 and 1530, the side doorways being of the latter part of the twelfth century; and I may say, by the way, that the north doorway is, perhaps, with the exception of the south porch of Chartres, which also shows Romanesque influence, one of the finest pieces of Gothic composition in France.

The whole of this façade is flanked by two towers, the north one called the Tower of St. Romain, of the thirteenth century, and the south one the "Butter Tower," of the fifteenth and sixteenth centuries. Just short of these two towers the composition of the centre is flanked by two small square towers crowned with spires. The centre part between them is also flanked by two small, square towers, which probably had spires whose cornices range with those of the former towers. It is not easy to give a clear verbal description of the design, but, after hearing it, the lantern will show its appearance. Beginning at the ground, projecting buttresses flank the doorways. These buttresses are elaborately enriched with canopied niches and run up to the level of the centre of the rose window: between the buttresses of the centre bay springs the stepped arch of the central portal surmounted by an open gable. The cornices of the gable run up, when seen in perspective, to the top of the rose window. Just over the point of the outer archivolt of the door is a string with an open balustrade above it, and at the back of this is an openwork arcade, the arches of which form an A, probably for Amboise. At the back are the deep jambs and arch of the central window, beneath the latter is the central rose window filled with thin and elaborate tracery. From the top of the archivolt of the great window run up ten small buttress-shaped mullions cut off by a string level with the top of the arch through which they run, forming a pierced and canopied parapet with an arcade over it, each arch of which is alternately canopied and gabled, and at the back is an arcaded parapet. From the tops of the three centre ones runs a sharp curved gable with a finial behind it, flanked by two pinnacles with open flying buttresses. The spaces to the north and south of the great west window are formed into an arcade of three arches on each side mullioned with two mullions and divided into three heights with two heights of canopied transoms, and with the head of each main arch filled with tracery; those against the towers are blank and the one between has its traceried head open to the sky; standing on the canopied transoms are three rows of statues, one between each pair of mullions. A great part of this tabernacle work had perished, but was being restored some ten or a dozen years ago when I was last there. Between the last small northern tower of the front another arch exists going right up to the tower of St. Romain.

Rouen Cathedral cannot be said to be wanting in effect, the grand recessed central portal gives a sufficiently deep shadow—as does the deeply-recessed rose window with the barbed point in deep shadow above it, which almost looks as if the lofty gable of the door were its handle. Above, the open gallery has little more than a quarter of its length in light against the deep shade behind; the whole gallery holding the two narrow towers together. Attention is arrested by the slight cornices of the open gable to the central portal, which stand out light against the great dusky west window, which it cuts in two. Still, with all this, and with all the wonder experienced by the mysterious shapes and by the knowledge shown and the skill exhibited, it cannot be considered a satisfactory composition, nor in the true sense an architectural one. The central feature—that is, the middle portal—with its buttresses, is not ill proportioned, but the blank windows in the towers give a look of weakness to them, and an amateur could scarcely admire the proportions of the whole front between the tower of St. Romain and the Butter Tower, while to the architect it neither suggests permanence nor durability, but an ivory casket to be put under a glass case; nor do the arcades suggest any comprehensible interior. The traceried heads of the second arcades, through which the sky is seen, suggest folly, as the blind arches against the towers suggest weakness, while the open gable over the central portal suggest two scaffold poles or the gigantic wooden compasses seen in the monuments to Gothic architects. With all its elaboration, originality of design, and superhuman skill in workmanship, it is much less satisfactory than the front of Soissons; which is plain, simple, effective, and eminently suggests permanence and durability: as well as that masterstroke of the architect, the production of the proper effect with the slightest amount of work. The cathedral up to the first floor consists, exclusive of the buttresses, of plain flat masonry with three deeply-recessed portals, there is a narrow recessed archivolt to each of the portals, corbelled over, the edge of which is ornamented with strung beads at considerable distances apart, a small cornice or string ornamented with leaves and a pierced parapet above, finishes this projecting story; the design of which is almost perfect, the sizes of the openings being of most exquisite proportions, and the ratio of shade to light is equally agreeable. Above this the front is divided into three portions by projecting buttresses, whose three upper sets off are nearly equal, and this is capped by a cornice with some effective ornament on it and a deep splay at the top. Two deeply-recessed windows, now blank, fill up the outer divisions, and in the middle space there is a fringed pointed arch, beneath which is a circular rose window. This feature is not to my taste. This story is capped with an open arcade binding the whole front together. When I was there one tower alone remained and two bays of the arcade. The one tower that still remained had a buttress on each angle with pinnacled tops, the finial of each just peeping over the cornice. The whole space between the buttresses is filled with two long windows, which are louvred. The tower is capped with a strong cornice, and with an open balustrade above it.

I must just say a word or two about our own cathedrals, though I doubt if any one can in all respects hold it own against the great cathedrals of France, still I think that the west front of York is a vigorous composition and the treatment of the west front of Peterborough is unique, called by Fergusson, if I recollect rightly, the only instance of a Christian portico. Though barbarous enough, it would be striking if it were not for that ugly little abortion, the library, stuck in the centre arch. One can hardly believe it was put there of malice prepense; I have always supposed that the piers there showed signs of bulging before the library was built. Durham owes much of its fame to its situation, and from the river banks the Galilee perched on the crags is one of the most picturesque things I have ever seen, though it is externally without any other merit.

As far as composition on a grand scale is concerned, at least as far as I have seen, Lincoln surpasses everything.

In the Parthenon we admire the exquisite contrast of line; the tapering columns springing from a flight of steps with architrave frieze and cornices repeating the horizontal motive of the steps; but at Lincoln, in the view I give, there is a horizontal line of 160 ft. to set off the vertical masses of towers more than 30 ft. square and 100 ft. high, while the centre lantern tower is more than 50 ft. square and nearly 120 ft. above the ridge, with windows in it more than 40 ft. high. When you get composition on this scale you cease to care about detail.

I just give you a view of Milan Cathedral and the west front of Siena Cathedral, not to leave out Italy.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS:

THE GARDEN IN RELATION TO THE HOUSE.

A MEETING of this Institute was held on Monday, at No. 9, Conduit-street, Regent-street, Professor Aitchison, A.R.A., President, in the chair.

The minutes of the last meeting having been taken as read, Mr. W. Emerson, Hon. Secretary, announced the death of Mr. W. Tippings, Hon. Associate. Mr. H. E. Milner, Hon. Associate, then read a paper entitled "The Garden in Relation to the House," the following being an abstract of the paper.

Mr. Milner said that he proposed to speak of the treatment to be adopted in laying out grounds, particularly in their more immediate relation to the house, and to indicate generally a practical

application of the theories advanced. The formal treatment of gardens reached a high state of perfection under Elizabeth, when the architect who designed the house also laid out the garden with its forecourt and broad terrace, its straight walks leading from it encompassing the flower-beds, and all harmonising with the building. Little thought, however, was devoted to the treatment of the country outside beyond the planting of avenues. Towards the end of the eighteenth century fashion ruled the destruction of most of the old formal gardens, to be replaced in very many instances by a no less artificial and formal imitation of nature. The designers were not content with amalgamating with whatever was good of the old work a natural treatment of the outlying ground, or of giving greater breadth to the existing formal work, but swept away all this and replaced it by meaningless walks, by clumps of trees and shrubs dotted irregularly on the lawn and park, by a boundary of planting, by imitation of bits of natural scenery, by the introduction of artificial ruins and such-like objects, with the desire of making a picturesque landscape. The author then went on to speak of the happy mean between the formal and the picturesque treatment. He differentiated greatly between the treatment of terraces, walls, steps, balustrades, &c., in stone and verdure. Architects should extend their work in the garden in connexion with the building; but this work should go hand-in-hand with the composition of the greater picture, which the art of landscape-gardening should produce. The increased resources of modern horticulture should be taken into account: not merely the eye but the mind should be appealed to by the beauty of composition of line, colour, perspective, and grandeur; a liberal art should not degenerate into a mechanical one. Places differed in the conformation of the ground, in climate, in soil, in the requirements of the owner, in the amount to be expended, and in the possibility of an extension beyond the immediate precincts. It was, therefore, futile to lay down any hard-and-fast rules for design. The author then proceeded to treat in detail of the site, the approach, the terrace, and the garden formation and planting. The approach to a house should always appear to be direct, and any deviation from such directness should not only arise from, but should also be made to arise from, some decided obstacle. By direct was not meant straight. A straight approach required careful treatment. It was artificial in character, it could appropriately be used when an imposing or somewhat pretentious building was at the end of it, or when the distance was short, and when the country was flat. In sloping ground it should, if possible, be made against the slope of a hill. The gradient should be even and flat, or very slightly and continuously curved, otherwise it would appear not straight. If the ground be very undulating, a straight road is out of character with its surroundings. A curved line of road was generally to be preferred, as being more easy of construction, more varied views could be obtained, its gradient could be varied, following within limitations the natural undulation of the ground, and the side slopes could be more easily and freely dealt with than the sides of a straight drive. Gradients, width of walks and drives, entrances, were here discussed in considerable detail by the author. The lodge and entrance gates belong to the drive, and should be parallel with, and at right angles to it, as distinguished from the highway. The face line of lodge should be at least 10 ft. from the edge of the drive, and its windows should be able to command the entrance and a certain length of drive. On entering by the drive it was advisable to create a good impression, and, therefore, to mark distinctly the difference between the dusty highway and the shaded, well-trimmed drive within the gates. Planting might be introduced on either side of the entrance, but once well inside a view should be given of the outlying grounds, or stretch of park, or distant wood. A curved drive should not be planted continuously, but broad masses of planting introduced, at first to shut off the highway, at turns in the drive, and on the top or slopes of knolls round which the drive may wind. The direction and level of the approach, and the character of the architectural features, ruled greatly the plan to be adopted for the treatment next the house. The treatment of the terrace also depended very much on the architectural character of the building. By "terrace" was meant not only the narrow strip of level ground placed parallel with the house, or the more stately portion—often with architectural adornments—laid out along the face of the structure, but the whole of the ground that formed the base or setting of the building. Having next discussed the various forms of terraces, the author passed on to the treatment of the garden proper, quoting partly from his book on the subject, which defined the system he advocated. So many considerations press in to vary design in the general plan of a garden, that arbitrary dealing by imposition of what may be termed paper designs, however ingenious, was ill advised. The detailed plan should spring from the site as an adaptation of its natural, or created natural, features, and should not be forced upon the position, crushing it to an artificial scheme. To copy simply the design of another place is inadmissible. Considerations that rule in this connexion were almost infinite—extent, geological formation, soil, existing natural formation or features, climate and aspect, the display of distant beauty, conformity to outside influences, particularly to the requirements of the possessor and the expenditure of money that may be made. There were points of similitude between the painter's art and landscape-gardening; but the landscape-gardener must consider that his colours change and grow; he must realise as he creates his picture that in a few years what now seems like a light green stroke of pigment to the painter may have become a tall tree, beautiful in itself, but of altered beauty, either helping or marring the landscape. He must follow nature by adapting or garnering her beauties, and tutoring her, so to speak, to a display of them. But by following nature was not meant a slavish imitation or reproduction of any of her particular scenes. Some were unattractive, some very inappropriate—all were subject to dissimilar conditions, and imitation in nature as well as in art produced pettiness. But the spirit of the beauty of nature, embodied as it were in those of her works or features that express her majesty, simplicity, peacefulness, sweetness, repose, refinement, strength, and variety in form, colour, abundance, or any of her modifications as parts of loveliness, should be included and brought into juxtaposition in an ideal scene so far as it was possible to promote its natural development. The terrace, the region immediately next the house, and the general arrangement of the walks and gardens, having been discussed, the author next dealt with the most suitable positions for planting trees and shrubs, principles of grouping, the effect of colour on distance, character of foliage, &c. He maintained that they should carry out in the parts surrounding the house the architectural feeling of the design in terraces, walls, steps, basins, beds, and so form a base; that they could still have the dignified and quiet delight of formal work—not a narrow curtailment of the whole design. But there was in addition a broader treatment beyond—a work difficult to proportion in relation to foreground, to broad lawn-spaces, to grouping, and choosing trees and shrubs for effect in size and colour, to directing the eye to desired points, to taking advantage of climate and character of the place either natural or acquired, to provision of light and shade in the undulation of the ground, and to a knowledge of horticulture. This art-gardening was far beyond the limitations of formal work only, for it could apply the balance and proportion of the latter, and, in addition, present a noble conception of art-work, in its execution of outline, surface-formation, and grouping, and draw into the picture the greater, broader, varied landscape.

The Hon. Alicia Amherst said that she certainly thought that the garden should be laid out as much as possible to coincide with the architecture of the house, and that that was being more seen to every day by the designer. She was glad to hear the allusion to Parkinson and his old-fashioned flowers; certainly there never was a time when there were so many old-fashioned flowers as there were to-day, and they ought to be taken very much into consideration when designs for new gardens were being made, just as in designing an old Elizabethan house we had to adapt it to modern requirements. And the kind of plants should be thought of. In some parts of England, a sheltered garden, or a garden with sheltering trees, would grow anything; and in the southern or western parts of England, many trees which were sub-tropical in appearance could be easily naturalised; and it would not be at all in the interest of horticulture to contract or limit the design.

Mr. Aston Webb, in proposing a vote of thanks to Mr. Milner for his paper, said that the architect and the landscape gardener were most closely and properly associated. The nearest approach to a paradise was a beautiful garden on a beautiful summer's day, and anything that would help us to realise that paradise was very much to our advantage; but the most beautiful garden was incomplete without a house, just as the most beautiful house was incomplete without a garden surrounding it, and it was essential that the two producers of the house and the garden should work hand in hand from the very commencement. When we were building a house we should call in the landscape gardener as our friend and discuss with him the way in which we proposed to enter the house and lay out the general building before we laid a stick or even drew a line on paper. The question whether the garden should be formal or otherwise had interested architects not only, as some people seemed to think, now, but from the time of Elizabeth. The term "formal garden" was rather overdone, and often very much misunderstood, not so much by architects, but amongst their clients and the public generally. The formal garden that we were striving for was not the formal garden of Holland or of Italy, but the formal garden of England, such as that at Hampton Court or as left at Hatfield and in hundreds of thousands of our old English homes, with high hedges and long walls, with wide sloping lawns to look at and to walk on. How far the garden should be cut off from the general grounds must naturally have affected all that we did. Mr. Sedding thought gardening disappeared when the ha-ha fence was discovered. That was true, and one could recognise the disastrous effect that it had had upon our gardens; but, on the other hand, Mr. Austin, the poet laureate, who had written so delightfully on gardens, quoted from a book lately published, in which it was advocated that there must be a boundary line between the garden and the house, for choice a good high wall, and said that this was an idea that could only have emanated from an architect who naturally went for bricks and mortar. He had not been able to discover that passage. He had also seen a notice in *The Garden* that an architect's idea of a garden was a small square plot of land surrounded by a high brick wall. There must have been some mistake there. Architects did not wish to surround the house with a brick wall and put a garden in the middle of it, but they certainly were not afraid of hedges or walls. Mr. Milner spoke of the courtyard of houses having a wall 3 ft. high. He was sure he must have meant 9 ft. or 10 ft.; a courtyard with walls 3 ft. high would not have been a courtyard at all to his thinking. Mr. Austin, in "The Garden that I Love," had exactly described the ideal sort of garden, and in a little poem called "Had I a Garden" he described his ideal garden as not a strictly formal one, but a combination. It should "lie in the sun;" it should have "Alleys green that lead where none should trace;" it should have a certain mystery about it; it should provide "shelter for feeble feet" under its tall trees and in shady walks, and it should have "design." In a garden which was man's work man's hand should be visible—not too apparent, but showing some object in view.

Mr. Statham seconded the vote of thanks to Mr. Milner, although he could not say that he altogether agreed with him. We were in a sort of reaction in regard to the question of the formal and informal garden. For a long time the formal garden was discarded as an old-fashioned thing in favour of the natural garden; now there was a movement in favour of it by some clever enthusiasts who were disposed to go to the other extreme. Like Mr. Milner, he had no sympathy for that movement. He did not think that hedges and trees clipped into artificial shapes necessarily belonged to the formal garden. Hampton Court as it now stood was almost an ideal formal garden in connexion with a house, but the old engravings of Hampton Court, as originally laid out, showed a totally different thing—a formal garden of little box hedges laid out in intricate and elaborate patterns. That had all been done away with, and to the great improvement of the garden. He agreed with Mr. Milner in advocating the formal treatment of the garden in immediate connexion with the house. Till recent years that was not realised, but now both the formal and informal people were inclined to it; but he disagreed with Mr. Milner where his walks began to wriggle. The walks and clumps of bushes in one of the plans reminded him of the great problem in creation—which came first, the bird or the egg: were the walks curved in order to get round the bushes, or were the bushes planted for the walks to curve round? His opinion was that the whole process of what was called landscape gardening—the carving out of a sort of picturesqueness out of the ground, and planting trees to make what might be called an artificial accident—was all a delusion, and did not give pleasure, because it was always

found that it was a contrived thing. Turn again to Hampton Court; nothing could be better; the garden formal in detail; the park, beyond the garden fence, not formal in detail, but formal in its general lines, keeping up the appearance of design over the whole ground. As to light and dark coloured trees being used to give the effect of nearness or distance, he did not quarrel with Mr. Milner on that point, but it reminded him of the case of the poet Shenstone, who had a fancy for artificial effect, and in a small garden arranged an avenue with converging sides to make an artificial perspective; he made bays in it half-way down, ending with large dark trees on the nearer side and beginning with small light tinted trees on the further side, to give a false extent to the opening, and the vista ended with a miniature summer-house too small for any one to get inside, and painted in delicate tones to give the effect of distance. The Nemesis that overtook Shenstone was that his neighbours the Lytteltons, on the next estate, used to bring their friends to the boundary to look at Shenstone's perspective from the wrong end.

Colonel Prendergast said he thought that Mr. Milner's paper would be found to contain a great deal of most valuable information on a subject that touched the Institute more nearly than people were inclined to believe, for each generation had to deal with the difficult task of making our English homes more charming than they were before. Fifty years ago the great houses of England were laid out so as to have a great field right up to them. At that time the Duchess of Sutherland, who had been brought up at Castle Howard, which was Italian in all its surroundings, set to work at Trentham to create an Italian garden, but splendid as it had been and was, one knew that the bedding out business was now utterly worn out and done for. In England in all matters we were divided into two parties, and in the matter of gardening we had the formalist and those who went in for a free hand. He agreed with Mr. Milner that the garden could only be treated properly in these days by a combination of the two methods. The Institute was chiefly concerned, no doubt, with new buildings. Unlike the buildings of a former day, which were always built in hollows or on the flat, the houses were now almost always placed on high ground, which at once altered the whole method of treating the grounds round them; it was therefore the more essential that the architect and landscape gardener should be in consultation, and in complete accord from the very commencement, and that no cut-and-dried plan should be laid out for the grounds until you knew how the house was going to look, and how the superfluous material was going to be disposed of.

The President, in putting the vote of thanks to Mr. Milner, remarked that every one who was born in England was sure to have more or less of a taste for a garden, whether it was a formal one or a natural one. He admired Mr. Milner for his modesty, for he had always understood that the landscape-gardener looked upon himself as entirely master of the situation; that the only important thing was to lay out the grounds, and having done that, he could always recommend an architect to build the house to accord with them. There was a certain charm about what it was the fashion to call the formal garden, with its cut yews and cypresses, especially in a cottage garden in wildish places in the country, where they formed such a contrast to the natural wildness and introduced a touch of humanity into nature. This trimmed garden was derived, like most things in our civilisation, from the Romans, by whom it was carried, perhaps, to an excessive degree when the trees were cut into the shape of animals. Martial told us of a little boy who put his hand into a bear's mouth cut in the foliage of a tree, but a serpent had got in there and bit him, so the bear was the end of the boy. The best thanks of the Institute were due to Mr. Milner, for there was hardly one present who had not had a house or even a cottage to build inhabited by people who had not always been accustomed to cottages where a garden formed its principal delight.

The vote of thanks was then put, and carried unanimously.

Mr. Milner, in reply, said: It was difficult to say where in the discussion lay the happy mean, when on the one hand one of the greatest authorities on art (the President) stated that it was pleasant and delightful to see a cut bird next a little cottage, and another gentleman (Mr. Statham), who certainly had studied gardening, insisted that the formality should extend not only close to the house, but should form the whole of the garden. Then, again, Mr. Aston Webb, whom he had always considered most moderate, advocated the extension of the formal garden in a greater direction than he should do. He had tried to explain that the formal garden (which he agreed was a misnomer) should extend to and form the platform of the house, but that once passed you must at some time get into the natural treatment of the ground. He thought Colonel Prendergast had made a most important point which he admitted in his paper that houses were now placed on the hills or hill-sides, whereas formerly they were on the flat ground. The only rational way of treating the ground was to adapt your plan to the natural site. It was unwise, if not impossible, in an undulating district or on the hill-side or at the top of a hill to form a regular formal garden, such as Hampton Court. He agreed with Mr. Statham as to the alterations and improvements at Hampton Court, but at the time when the avenues there were laid out there was not that fringe of houses that there was now, and many of the avenues led from nowhere to nowhere, and if that Hampton Court plan had been made on the hill-side, he thought the result would have been ridiculous. You must adapt yourself to the place in all your work. He felt with Mr. Aston Webb that the architect and the landscape-gardener should work hand in hand. The work of the landscape-gardener he took to be to form in his mind a picture of how the ground would look when he and the architect had finished with it; and so they ought to work in harmony. He always in his own practice tried to induce the architect to carry out into the gardens more of his architectural work, and he felt strongly that this subject had been very much neglected. It was all very well to talk of the formal garden, but the hedges would grow and shut off views. There was no formal garden over eighty years old that retained anything of its former and ideal character. The really old gardens had a picturesqueness in the growth of the trees themselves, but that was not owing to their design; it was owing to the beauty of the trees themselves. Mr. Aston Webb spoke of the courtyard. He should be very sorry to see a courtyard with walls nine or ten feet high all round the north side of the house. The walls must necessarily be high if they were to enclose the offices, &c., or to provide shelter, but surely one would like to have a peep into the park on the north and north-west sides through the courtyard.

The Chairman announced that a Special General meeting would be held on the 1st prox. to elect the Royal Gold Medallist for the current year.

The meeting then terminated.

GATES. ITALIAN. 17TH CENTURY

Fig. 1.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—We are informed that the partnership which has for many years existed between Mrs. Mary Woodward and Mr. Samuel Hunt Rowley, who traded as James Woodward & Rowley, sanitary earthenware manufacturers, at Swadlincote, Burton-on-Trent, has been dissolved by mutual consent. Mrs. Mary Woodward will henceforth carry on the business of James Woodward on her own account at the works and premises where the partnership business has been carried on.

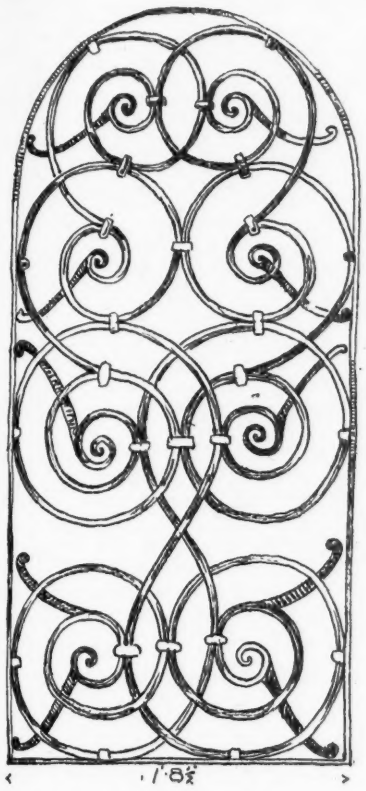


Fig. 2.

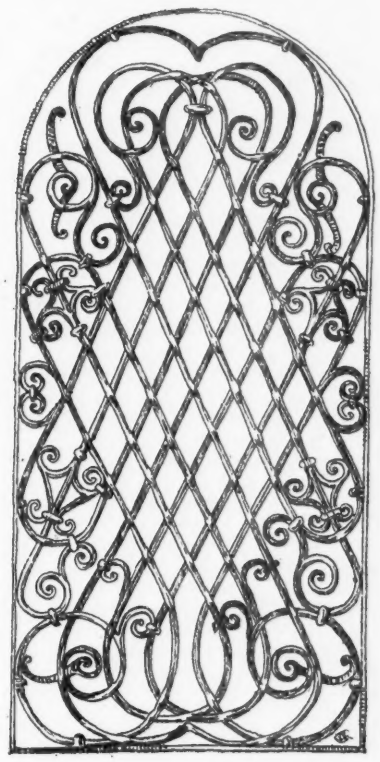


Fig. 3.

ARCHITECTURAL SOCIETIES.

ARCHITECTURAL ASSOCIATION: DISCUSSION SECTION.—The seventh meeting of the Discussion Section of the Architectural Association for this session was held, on the 27th ult., at 56, Great Marlborough-street, Mr. W. Pywell in the chair. Mr. F. C. Eden read a paper on "Mystery as an Architectural Quality." Mystery, the author said, was that which is obscure until explained. It might be either absolute or relative to man's knowledge at the time at which it was expressed. Its value in the arts was its truth to Nature, and its function its power to rouse the interest of the spectator. Mystery had a well-recognised place in poetry and the drama, and it was especially appropriate in music and architecture, and, though it was perhaps not essential to beauty, yet in the greatest works it was ever present. In architecture its sources were found in various qualities, such as reserve in the mind of the designer, which became suggestion in that of the beholder. Such reserve was seen in complication and inexplicability of parts, as in Gothic tabernacle work, interpenetration of mouldings, and intricate vaulting; in subdivision of plan, as where the altar screens at Winchester, thwarting the view, suggested further glories beyond; in incompleteness or unsymmetry, as in the differing twin towers of many foreign churches. Other sources of mystery were found in surprise; in gloom, which, however, was only telling when relative to surrounding brilliance either in other parts of the same building or in the open air, as in sunny lands; in inspiration of design, occasionally so marked as to be mysterious; in size; in sumptuousness; in situation and environment; and in remote age, which was always mysterious, and which gave to buildings, though they might have been commonplace to contemporary men, a mysterious interest to succeeding generations.—In the discussion which followed, it was brought out that mystery as seen in architecture was probably more a result of fortuitous circumstances than a quality deliberately sought for by the designers of buildings; and that a quality in the mind of the beholder was perhaps as essential to its existence equally with the qualities in the object beheld. The next meeting will be held on the 24th inst., at 7 p.m., when Mr. Henry Rose will read a paper on "Dodges."

EDINBURGH ARCHITECTURAL ASSOCIATION.—This Association, by permission of the Edinburgh School Board, visited on Saturday last the new school at Broughton, under the leadership of Mr. Robert Wilson, architect. The school is built upon the site of Blackfield House, and consists of a central block with a wing at each side. The central block contains the principal class-rooms, entering from a combined boys' and girls' staircase, and in the wings are the teachers' private rooms and cookery and laundry class-rooms. There is a total accommodation for 1,358 children, provided at a cost of about 24,000*l.*, exclusive of the site. In the basement are situated the gymnasium, swimming bath, boiler house, and engine room. The visit was brought to a close by a vote of thanks to Mr. Wilson for his explanation.

DUNDEE INSTITUTE OF ARCHITECTURE, SCIENCE, AND ART.—A meeting of this body was held in the Victoria Art Galleries, Dundee, on the 10th inst., Mr. Leslie Ower presiding. Mr. J. J. Henderson, the Secretary, read the announcement of awards in connexion with the local competitions of the Institute. The referees in connexion with the competition were Messrs. T. S. Robertson, James Langlands, J. G. H. Spindler, Robert Hunter, and John Maclauchlan. There were eight competitors for the first competition (sketch-book), and the awards were as follows:—1, Miss Ada Hill Walker, St. Andrews; 2, Robert Annal, Dundee, and A. G. R. Mackenzie, Aberdeen, equal; 4, Thomas Ross, Dundee. The other competitions resulted as follows:—Measured Drawing—1, Andrew Haxton, St. Andrews; 2, R. D. Baillie, Cupar Fife. Design for Pediment—A. Hilton. Outline Drawing from Museum Cast—1, Miss Catherine Fidler, Dundee; 2, W. H. Grant, Dundee. Interior Glass Door—J. Wyse, Maryfield. Mr. Walter M'Gregor, Superintendent of the Public Baths, Dundee, then gave an address on "Water Heating by Steam." He explained the working of the various kinds of apparatus in use in the Dundee and Lochee Baths.

CARLISLE ARCHITECTURAL, ENGINEERING, AND SURVEYING SOCIETY.—A meeting of this Society was held in the Town Hall on the 9th inst., Mr. C. Lonsdale occupying the chair. A paper was read by Mr. J. Slack on "The Warming of Buildings." The lecturer described the methods of warming buildings by means of one-pipe apparatus, and described their advantage over the old two-pipe system. The lecture was illustrated by diagrams and photographs of the most improved fire-grates now in use. A vote of thanks to Mr. Slack for his paper terminated the proceedings.

THE ARCHITECTURAL ASSOCIATION OF IRELAND.—The first of a series of visits to buildings was held on Saturday last, when, by the kind permission of the architects (Sir T. N. Deane & Son), the party were conducted over the new lecture theatre of the Royal Dublin Society by Sir T. N. Deane. On Monday evening at the Advanced Class of Design Mr. J. J. O'Callaghan criticised the designs submitted for "A Village Public-house." The next subject to be criticised, by Mr. T. Drew, is "A Small Country Church." On Tuesday evening the ordinary meeting was held at the Grosvenor Hotel, Mr. R. Caulfeild Orpen in the chair, and among the visitors were a number of the medical profession, who took part in the discussion, the subject of the lecture being "Hospitals and Hospital Construction," by Mr. F. Batchelor. The lecturer drew attention to the fact that Dublin stands second in the United Kingdom in the proportion of hospital beds to the population. London stands first, and Edinburgh third. Of the Continental cities Rome occupies the first place, with about three times the number in proportion to the population that Dublin provides. The lecturer then described the various types of hospitals in the United Kingdom and the Continent, and, after describing them, he went fully into the construction, accommodation, arrangements, methods of heating and ventilation, and various other points of interests. A discussion ensued, in which Mr. Jameson Johnston (City of Dublin Hospital), Mr. Rawson Carroll, and Mr. F. Hicks, took part. The Chairman having announced the next subject for the Advanced Class of Design, "A Cottage Hospital," to be criticised by Mr. Batchelor, the meeting terminated.

COMPETITIONS.

POSTER FOR THE BUILDING TRADES' EXHIBITION.—The premium of 10*l.*, offered for the best design for a poster to advertise the Building Trades' Exhibition in March next, brought forth some thirty competitors, the winner being Mr. J. Houry, 9, Atherley-road, Bristol. The following competitors were highly commended:—"The Master Builder" (Muirhead Bone, Glasgow); "Sphinx" (Alfred Morgan, London); "Bis" (Robert F. Sherar, Edinburgh); "L'Elephant Blanc" (David Peare, Glasgow).

SKETCHES OF WROUGHT IRON-WORK:

SOUTH KENSINGTON MUSEUM.

THESE examples, mostly of the seventeenth century, serve to illustrate some of the decorative effect which may be obtained from the simple treatment of wrought iron in lines which express more or less the ductility of the material, without any of the more elaborate effects of smith's work in conventional foliage and other such details.

Of the Italian examples, the gates shown in fig. 1 present an admirable example of the form of ornamental design in perfectly symmetrical panels which is characteristic of the taste of the Italian Renaissance, reminding us of the effect often found in carved pilaster panels, but treated in a manner entirely suited to the material. The whole design is formed by the twisting of the bars and the manner of putting them together; and though the whole is completely symmetrical whether we regard it as divided vertically or horizontally, yet there is complete freedom and play of line in the detail, which is bent and played with in its various curves in a very expressive manner. If we compare this with the two German designs shown in figs. 2 and 3, of about the same period, we may recognise that neither of these makes so characteristic a use of the ductility of the material. fig. 2 is designed in curves, but in a more rigid and less playful manner. In fig. 3 there is more freedom in the treatment round the edges of the panel, but the central portion shows a stiff cross-barred pattern which is quite out of keeping with the character of wrought iron, and, as far as decorative purpose is concerned, is both commonplace in effect, and a throwing away of the real capabilities of the material.

Fig. 4 (p. 170) is elegant in design, but derives a little stiffness of effect from the straight lines running through it, which makes it inferior in point of style to fig 1. The grille shown in fig. 5 is a good example of Italian taste in the production of a geometrical diaper pattern in a thoroughly wrought iron manner, and in this respect may be instructively compared with the hard mechanical effect of the centre portion of fig. 3.

Fig. 6 is an example of German freakishness in the design of the vane, which is rather original, and the decoration at the top and bottom is in harmony with the material. Figs. 7 and 8 are fair examples of bracket designs, a little wanting in decision of form.

Fig. 9 is exceedingly English in character, one of those examples of the way in which English smiths would ornament an instrument for

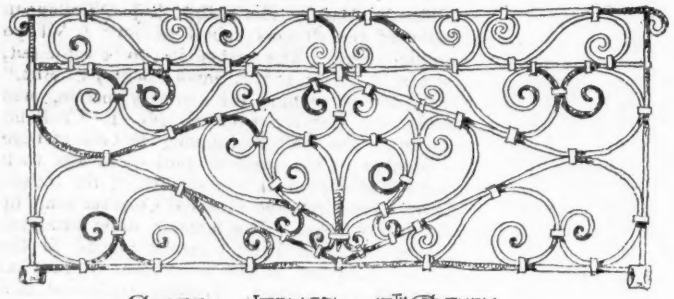


Fig. 4.

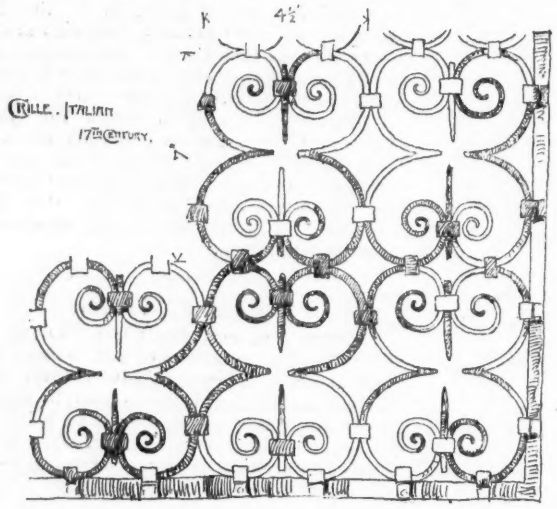


Fig. 5.

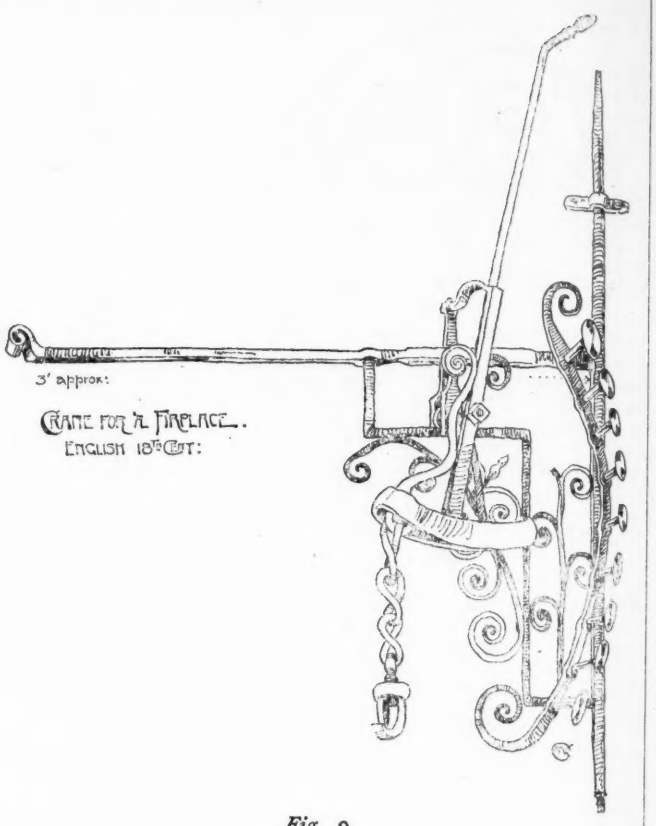


Fig. 9.

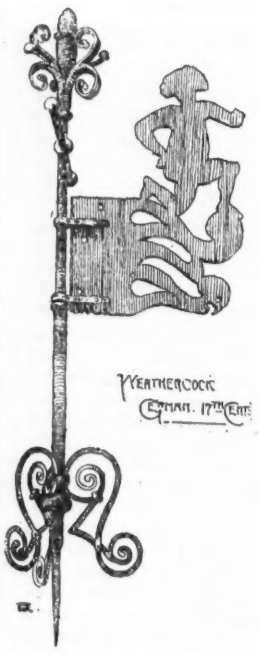


Fig. 6.

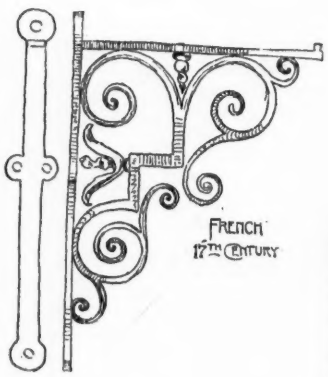


Fig. 7.

Fig. 8.

practical use in a manner which rather interferes with its appearance of efficiency for its purpose, and perhaps with its actual efficiency, but nevertheless converts it into an object of artistic interest, though in a rather eccentric and semi-grotesque manner, as is often the case with English work of this class, where we are struck not so much by any beauty of line in the implement as by the curiously pertinacious endeavour of the workman to twist his work into shapes which were intended to conceal its merely practical character. This class of English work is not of the finest type in an artistic sense, but it is interesting from a certain original humour which seems to pervade it.

THE SANITARY INSTITUTE.—The council have accepted an invitation from the City Council of Leeds to hold a Sanitary Congress and Health Exhibition in that city in the month of September next.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday at the County Hall, Spring-gardens, Sir Arthur Arnold, Chairman, presiding.

Loans. — On the recommendation of the Finance Committee it was agreed to lend the St. Marylebone Baths Commissioners 10,500*l.* for rebuilding the public baths, and the School Board for London 150,000*l.* for school buildings and other purposes.

Proposed Incorporation of Westminster.—A long debate took place on the following recommendation of the Local Government and Taxation Committee:—

"(a) That while the Council does not object a charter being granted for the incorporation of any suitable area in London, for the purposes merely of the change of the corporate name and the substitution of the name of mayor and council for the existing name of a vestry or district board, provided that this can legally be done in the manner proposed, the Council will strenuously oppose any transfer of powers by any such machinery, or any such transfer by any other machinery to a particular area, without the simultaneous consideration of the whole subject of powers and areas in London.

(b) That a communication in accordance with the above resolution be sent to the Privy Council."

After two amendments had been defeated the recommendations were agreed to, the phrase, "the Council will strenuously oppose any transfer of powers," being altered to read, "the Council will oppose any transfer of central powers."

New Theatre, Norris-street, Haymarket.—The Theatres and Music Halls Committee brought up the following report:—

"The Council, on June 30, 1896, approved of two drawings, submitted on behalf of Mr. Henry Dana, showing a site for a proposed theatre situated at the junction of Norris-street and St. Alban's-place, Haymarket. Norris-street, it was pointed out, is only 28 ft. 6 in. in width at one end, but is shown on the drawings to be increased in width to 30 ft. in front of the theatre. St. Alban's-place is at present 41 ft. 2 in. in width in front of the proposed building. On November 24, 1896, we reported to the Council that we had received seven drawings, dated November 10, 1896, submitted on behalf of Sir Henry Brownrigg, for the erection of a theatre upon this site, that seating accommodation would be provided for 800 people, and that all the regulations of the Council would be complied with. These drawings we asked the Council to approve upon the usual conditions, but the matter was withdrawn when our report was laid before the Council in order that we might further consider the question of the site of the proposed premises. We therefore gave the whole question further consideration, with the result that our previous report was again submitted to the Council on December 15 last, and again withdrawn. We have to report that we have again carefully gone into the whole matter, and, having regard to all the circumstances of the case, we recommend—'That the seven drawings, dated November 10, 1896, be approved, on condition that the works be commenced within six months, and be carried out in all respects in accordance with the Council's regulations and the provisions of the London Building Act, 1894, and that upon our reporting the completion of the building in accordance with the approved drawings and the above conditions, a certificate under the Metropolis Management and Building Acts Amendment Act, 1878, be sealed and issued to the owner of the premises.'"

Mr. Roberts moved as an amendment "That the recommendation be referred back to the Committee with an instruction to consult the solicitor as to the legal position of the Council in the matter, and to report to the Council thereon."

He especially called attention to the narrowness of the thoroughfares leading to the site.

Mr. John Burns, M.P., strongly supported the amendment, contending that the site was altogether unsuitable, and that the approaches were of less width than the regulations required.

Lord Monkswell said whether the plans complied with the regulations or not did not much matter, because it must be apparent to any one who had seen the locality that a theatre on this site would be nothing more nor less than a death trap. Therefore they ought not to hesitate in rejecting the application.

The amendment was carried by a large majority.

Drainage of Clerkenwell Detached: Construction of a Sewer.—On the recommendation of the Main Drainage Committee it was agreed that the tender of Mr. John Jackson, as amended, and amounting to 1,075*l.* 14s. 6d., for the construction of a sewer and other incidental works for the drainage of Clerkenwell detached, be accepted; and that the Solicitor be instructed to prepare the contract.

City of London (Sewers) Bill.—The report of the Parliamentary Committee contained the following paragraph, the recommendation being agreed to, 54 voting for and 51 against:—

"The object of this Bill is to dissolve the Commissioners of Sewers of the City of London, and to provide for the vesting of the property of the commissioners in the mayor and commonalty and citizens of the City of London, and for the execution of the powers and duties of the commissioners through the Common Council of the City. We need not remind the Council that the City of London stands in an exceptional position, never having been subjected to the legislation under which the other municipal corporations of the country have been reformed. The general powers of local government which have been granted to the reformed municipal corporations have not been granted to the Corporation of the City of London, which at the same time is not placed under the same financial restrictions as those corporations. The City Corporation possesses uncontrolled powers of borrowing and of alienating its property, and is not under the usual obligations as to the redemption of its debts; it does not submit its accounts to independent audit, or publish an account of the value of its corporate property. All the general powers as to management, sewerage, street lighting, watching, and rating within the City have been placed under the Commissioners of Sewers. Under the present scheme of metropolitan management, therefore, the area of the City under the Commissioners of Sewers stands on much the same footing as the areas of the other parishes and districts under the local government of vestries and district boards. The effect of the present proposal is to invest the City Corporation with all the general powers of local government, including new powers of rating, without at the same time subjecting it to the general law applicable to municipal corporations, and the bill, if passed into an Act, would certainly place a considerable impediment in the way of future reform of local government upon all the principles which have been hitherto suggested. We recommend:—'That a petition be sealed and presented against the City of London Sewers Bill.'"

The Council adjourned after having transacted other business.

THE LONDON COUNTY COUNCIL INQUIRY.

THE special inquiry into the organisation of the Works Department of the London County Council was resumed on the 3rd inst., when the examination of Mr. Edward White was concluded.

In reply to Mr. Dickinson, the witness said that, in putting the loss on the Colney Hatch works at from 5,000*l.* to 6,000*l.*, he had purposely understated the amount. He now showed that 7,000*l.* would more nearly represent the total loss. The real cost was found by adding the 3,253*l.*, which the Comptroller estimated as the amount of the transfers when adjusted, to Mr. Dyson's figures, 20,229*l.*, making the real total 23,482*l.*, and not 22,891*l.*, as had been stated. The sum of 2,900*l.* was still in dispute, that amount being claimed by the Works Committee for extra work done. The Engineer was of opinion that only 300*l.* should be allowed. This dispute would have to be settled by arbitration. In the case of Banstead Asylum, a precisely similar work, but done by a contractor, the claim for extras was only 230*l.*, which, as afterwards explained by Mr. White, was reduced by the Engineer to 70*l.* The witness denied that the work at Banstead was inferior; it was, on the contrary, very good, while worse work than some of that at Colney Hatch, especially the matchboarding, he had never seen. The wood was full of knots, was sappy, and very badly prepared. He had never seen such stuff used for varnished work. Work had been passed there, because it had been done by the Works Committee, which never would have been passed if done by an outside contractor. In the case of both Colney Hatch and Banstead the buildings were of a temporary character, and of such a special nature that they should never have been undertaken by the Committee. The witness invited the Inquiry Committee to go down to Colney Hatch and see the work for themselves. In the case of the Bexley Asylum foundations, where the prices obtained by the manager were good, there should have been a large profit, instead of which, when the establishment charges of 6 per cent. were added, there would be a loss of 7,700*l.*, instead of a profit of about that amount. The brickwork in the foundation requiring no scaffolding was charged at 15*l.* a yard, and 20,000 yards of sand at 1s. a yard. On both these items there should have been a very good profit. Then, during the construction, the Committee were fortunate in having four or five months of extremely fine weather, and the manager naturally thought that this would be a good job. The loss was simply due to mismanagement and to the waste of labour. The works executed by the Committee at the Asylum were only the foundations and not the superstructure, the whole cost of which the Committee knew would be 350,000*l.* In answer to further questions, the witness said the real amount of the contract for these foundations was 105,000*l.*, but it had been stated by Mr. Ward at 94,000*l.*, and nothing had ever been said to the Moderate members on the Committee about this higher sum. He did not know who had prepared the estimates, but he had been told that they were made up by Mr. Burns. It was true that out of a selected list of twenty-two builders only eight had sent in tenders, but several others had written to say that they would have been glad to tender but for the onerous conditions imposed. Seven out of eight of the jobs let to contractors were being carried out by country firms because the London builder would not compete so long as such conditions existed. They were thus driving the work into the country, and the London ratepayers were the sufferers. Not only was the contractor required to show his books, but he had to make a statutory declaration that the books were kept correctly, and this condition was regarded as an insult. The only alternative was to obtain tenders from a selected list of contractors.

Mr. Dickinson: Mr. Alderman Taylor has told us that the Government have given up the system of selected tenders.—The School Board do it, and their jobs are much more comparable to ours than Government jobs. The examination was continued at great length by Mr. Dickinson upon the witness's previous statement that the knowledge of the regulation for the production of periodical returns had been withheld from the Committee, which Mr. Dickinson regarded as a very serious charge. Mr. Dickinson endeavoured to make the witness admit that these periodical returns were only ordered for the information of the Comptroller, but the witness stated that the rule in question (Rule 62) had been passed in November, 1894, three months before he, as a member of the new Council, was elected, and when the complexion of the Committee was of a less party character. Mr. White adhered to his opinion that the first return should have been presented in November, and not left until March 25. A return brought down to the beginning of March should undoubtedly have been produced at the first meeting of the new Council. Instead of that it was withheld, and the witness did not think it was withheld accidentally.

In reply to Mr. Gruning, the architectural assessor, Mr. White made a further statement with regard to the losses on Vauxhall Temporary Bridge, Shelton-street, Bexley, and other jobs. He had estimated the loss on Vauxhall Bridge at 2,000*l.*, but when the establishment charges were added he believed it would amount to more than 3,000*l.* On November 20 last 11,484*l.* had been expended on the work, which was 44*l.* over the original estimate, but according to the new manager there was still, at that time, three months' work to be done, and that, by adverse conditions of weather and tide, might be further extended. When the losses on the other works mentioned were added the total loss would not be less than 29,750*l.*, and he still thought that this estimate was very much under the mark. There were some other large jobs which were not yet sufficiently advanced for a similar estimate to be formed. With regard to the question of friction between the Works Committee and the Architect's and Engineer's Departments, Mr. White expressed the opinion that the friction must continue so long as those officers did their duty, unless the Committee could show a profit on their jobs, and then, of course, there could be no dispute.

Mr. Gruning: What is the cause of the excessive cost?—It may be attributed chiefly to two causes—the cost of management and supervision, and the cost of labour. The supervision should be strengthened, and the tendency of the men not to do the same amount of work for the Council as for a contractor should be overcome if possible. No contractor would think of investing 125,000*l.* in a business of the extent of that of the Department, and of this sum he would never lay out 75,000*l.* for stores. The contractor's chief source of expense would be the wages, which he would have to provide for two months, at from 3,000*l.* to 4,000*l.* a week, amounting to about 25,000*l.*

Mr. Gruning: Would the builder turn over his money more often?—A builder would not require more than 50,000*l.* for a turnover of 240,000*l.* The witness expressed an opinion that the more work was undertaken by the Department the more money would be lost. The tendency in the Department was to take on too much work. They had fifty jobs running at one time, and as many as 4,000 jobbing works, which would, in the ordinary way of business, be distributed amongst thirty or forty jobbing builders. He found it difficult to say whether the Committee would be better employed in doing large works than in jobbing works because all their jobs showed a loss. He did not know of any Corporation which took on so many jobbing works as they did.

In reply to Mr. Waterhouse the witness reiterated his opinion that the Architect's estimates would have to be increased if these excessive costs were to continue. This agreed with the statement in evidence of Mr. Blashill himself, and also that of the Engineer, Mr. Binnie.

The next witness examined, Mr. Alderman Taylor, a member of the Works Committee, said in reply to questions from the Chairman, that before becoming a member of the County Council he was secretary of the Bricklayers Union, and he was still the bricklayers' representative on the Arbitration and Conciliation Board of the London Chamber of Commerce.

His visits to the Central Works as well as to the other jobs had been very frequent, but they were merely to see how the works were progressing, and he had never spoken to a single individual upon any of the jobs except the manager or clerks of works. He did not know whether less work was done by the men in the earlier jobs, but at present they did a very fair day's work. After further questions with regard to the employment, as a bricklayer, of one of the witness's brothers the examination was adjourned.

The examination of Mr. Taylor was resumed on Friday, the 5th inst., by the assessors, Mr. Waterhouse and Mr. Gruning. In the witness's opinion, though less work was done by workmen under the Council, it was of a better quality than they would do for contractors, and he considered that good results had followed the institution of the Department. As instances of good work, he gave the jobs at the New Cross Fire Station, Claybury farm buildings, and one or two others. The whole finish in these jobs was of a superior character, and more especially the brick and stone work. He would object to the removal of the wages clauses, because that would enable contractors to employ inferior labour at inferior prices. There was now no need for strikes or disputes with regard to wages.

Mr. Gruning: They can afford to wait until a dispute is settled. But does not this facilitate strikes of contractors' men by reducing the number of idle men to be sustained?—That is so, from one point of view. The witness agreed that unless something very unusual occurred on a job, the actual conduct of the work should be left to the foremen, without interference.

In reply to Mr. Dickinson, the witness explained the loss on the foundations of the Bexley Asylum by the low prices of some portions of the work. There was a bad price for digging and also for grubbing.

In reply to Mr. Fletcher, who desired to know whether the system of the School Board, in employing local labour, was not more economical, more popular, and more fair to the 118,000 builders' workmen not in the Council's employ than the centralisation policy of the Council, Mr. Taylor said he had doubts as to economy,

if they were to be guided by the experience of the London School Board. The cost of its repairs, which in 1892 was £50,000, was £94,000 last year.

In reply to Mr. Beachcroft, the witness said he was still a member of the Union but not an official.

Mr. Beachcroft: Do you draw a salary?—I do.

The witness was now closely pressed to say what he knew of the working of the ticket system by certain officials of the Union called ticket stewards. The custom, he said, had formerly been to appoint somebody to collect tickets, but no examination of tickets now took place on the works.

Mr. Beachcroft: Is there anybody at the gate to do it?—Yes, occasionally.

Does a man stand at the gate?—Sometimes.

Mr. Henry Holloway, President of the Master Builders' Association, was now called. In reply to Sir Arthur Arnold, he disputed the allegation which had been made by Mr. Ward as to the existence of a ring amongst builders against the wages clauses in the Council's contracts. There was not, and never had been any such ring. The objections of builders were not to the Council's wages list, but emphatically against the last few words in the form of contract, "in practice obtained in the London district."

Sir Arthur Arnold: Would that prevent you from tendering?—Yes. That in connexion with other things. Builders did not object to their wages books and time sheets being open to the Council's officers, but an inspection of a builder's private books they felt to be both unnecessary and offensive. Another clause to which the strongest objection was felt was that which required a statutory declaration to be made that the books were correctly kept. This was not merely an absurdity but an insult. They had an objection to furnish to the Council their priced bills of quantities, because these documents, which were the builder's trade secrets were never returned to them whether their tenders were accepted or not. That gave the Committee an undue advantage in tendering, and the witness endorsed Mr. Blashill's opinion that it must stop tendering. The Architect's invitation to tender, when there was a selected list, was regarded as a mark of confidence, but the better contractors would not be likely to respond to the invitation under present conditions. One of the main objections was the arbitration clause. In the case of dispute the Architect gave his award in the first instance, but the builder who did not accept it must go on with the job and await the final settlement before his side of the dispute could be listened to. A builder should have the power to appeal at once to arbitration. Then, power was given to the Council to determine a contract if it became known that the contractor had sublet any portion of the work. This was a dangerous condition. If the Council had a desire to get tenders from responsible firms it should adopt the contract clause agreed upon between the Institute of British Architects and the Institute of Builders. Builders had no objection to pay a properly-recognised rate of wages, but certain exceptions should be made in favour of old or infirm employés whom a contractor might wish to continue in his employment. Most contractors had also improvers, to whom, of course, they did not pay the full rate of wages. Mr. Holloway, in response to an invitation, gave valuable advice upon various points of a builder's practice, adding that he should like to say that he could see no advantage whatever obtained by the Department which could not be obtained from a contractor. In reply to Dr. Longstaff, the witness said it was always to the builder's interest to get his work rapidly done, that the conditions of contracting seemed to have been deliberately drawn up to prevent builders from tendering, and that trade union rules were often oppressive to workmen, and to old men positively cruel.

On the resumption of the inquiry on the 10th inst., Mr. Mowlem Burt was the first witness examined. Sir Arthur Arnold put a number of questions as to the objections entertained by builders to tender under the Council's form of contract. The witness said contractors made no objection to the wages schedule of the London County Council, but they strongly objected to the wages clause in the form of contract, because it recognised trades-unions only, and the masters thought they were worthy of being recognised as well as the men. The masters had met the men and agreed with them as to the rates of pay, and that agreement was as worthy of being mentioned as the trades-union agreement. They did not want to alter the general rate of wages, but they thought it a very hard thing, as the result of the trades-union clause, that thousands of workmen were prevented from getting employment. The witness further objected to the form of contract on the same grounds previously urged by Mr. Holloway. The examination of a contractor's private books and the arbitration clause were two points most strongly objected to. These conditions were altogether arbitrary. Contractors would far rather be in the hands of a professional arbitrator, the Engineer, or Architect, than in the hands of the Council. His firm had no complaint against the Council, but they had never made a tender since the new rules came into operation. He should not object to enter into competition with the Works Department at first, and his firm would be willing to tender against them so long as they found themselves fairly treated.

In reply to Mr. Waterhouse, one of the assessors, the witness said the books of his firm had not been examined, and he could not, of his own knowledge, say whether the private books of other firms had been examined or not.

In reply to Mr. Gruning, the architectural assessor, Mr. Burt said he preferred the form of contract agreed upon between the Institute of British Architects and the Master Builders' Association, and he accepted the alteration suggested by the Institute.

In reply to Mr. Dickinson, the witness said they were willing to tender for the Holloway storm sewer with altered conditions, but without such alteration they would not have tendered at all. It was true that their tender was considerably higher than the stated actual cost when done by the Department, but he had heard, and had good reason to believe that materials had been used, he alluded particularly to bricks, such as they (the contractors) would never have been allowed to use. In the cases in which they had undertaken work they had struck out certain paragraphs to which they took exception, and had suggested alterations in others. The penalty clauses they had struck out altogether. He would prefer the terms of the old form of contract, which made the termination of the contract the penalty for infractions, rather than be exposed to vexatious and arbitrary fines for infractions which were usually of an insignificant nature and often accidental. The Council would never dream of terminating a contract because a man had been paid ½d. or 1d. less per hour. Most firms had men working for them who might no longer be worth the full rate of 6d. an hour, but were very well worth 1*l.* a week. They had also young men, just out of their apprenticeship, to whom they could not entrust the finer work, and to whom they could not, of course, pay the full rate of wages. The tendency of trades-unions was to limit the number of young men—improvers—and also the number of apprentices, which was bad for all concerned.

In reply to Dr. Collins, Mr. Burt admitted that the arbitration clause was not so objectionable in the case of his own firm as to builders because they had not so many different items in their contracts out of which disputes might arise. The opportunities of dispute were so numerous in architectural contracts that an architect might render a good job a bad one. An architect had to look at so many little matters that he was apt, perhaps, to become a little captious. In his opinion, engineers who dealt with much larger items were generally larger minded men. His firm had never had any reason to object to an engineer's decision, but if he had made unreasonable demands they would have objected. There should be provision for an outside arbitration. It was very hard on a builder who believed he was entitled to draw perhaps 5,000*l.* to be told by the architect, "No, I shan't give it you until the job is measured up."

In reply to Mr. Fletcher, the witness thought the conditions exacted by the Council seemed intended to discourage contractors, as if it wished to stop contracting altogether. It would be a very difficult thing for the Department to find a manager equally well versed in all departments of the building trade, but the contractor had able foremen on his different jobs, some being best at one thing, some at another.

In reply to the invitation to suggest improvements in the Department, Mr. Burt said he feared he had not sufficient confidence that any suggestions he might make would be properly carried out by the Department as at present constituted. He thought it was a very costly way of doing jobbing work to send men to all the various districts from the central works at Belvedere-road. He believed the system adopted by the School Board was preferable.

In reply to questions from Messrs. Torrance, Davies, and Beachcroft, the witness gave particulars as to the terms of apprenticeship, the diminishing number of apprentices, the necessity of a contractor frequently visiting his works, contractors' methods of purchasing materials, and the execution of works by direct employment by corporate bodies. Contractors, in his opinion, could do engineering work at least as cheaply and as well as any corporate body provided they were treated in the same way, but, as in the case of the York-road sewer, such bodies could do work more cheaply at lower cost by making for themselves favourable conditions. His firm in tendering had to provide for the cost of keeping the traffic open, which would entail considerable expense, but the Council, having undertaken to do the work, closed the road and so saved that expense; then they found gravel where his firm had been led to expect running sand. The Council would probably find out what that meant in the Fulham sewer. Questioned as to the existence of a strike against the Council among contractors, the witness most emphatically denied the charge; so far as his firm was concerned there was not the slightest reason for it, and he believed that there was not the slightest reason for the allegation against any other firm.

Mr. Beachcroft: Your interpretation was that it was rather in the nature of a lock-out, the Council saying in effect you shall do no work for us unless on these terms.—Yes, and they still keep us out.

In reply to questions from Sir Godfrey Lushington bearing upon the favouritism practically shown to trades-unionism by the policy of the Council, the witness admitted that the extension of the radius covered by the Department to twenty miles from Charing-cross and the agreement to pay any new rate of wages that might be established by a strike might work that way, but whether it was intended to do so was another matter. With regard to periodical returns of prime cost, Mr. Burt said the practice of his firm was to insist upon such returns every month wherever a job cost over 1,000*l.*

Mr. Rowland B. Plumbe, architect, the next witness, in reply to Sir Arthur Arnold, explained in detail the causes of the loss of 2,600*l.* (or 3,600*l.* as estimated by Dr. Longstaff and other members of the Committee) on the Shelton-street job, and the loss which a previous witness had alleged would be incurred on the Boundary-street job. Speaking generally, he said the work done by the Department was as good as that done by the ordinary contractor. He was unable to see any difference, and he had taken care to compare. The supervision was as strict as in the case of contract work so far as he could judge.

In reply to Mr. Fletcher the witness said he thought, on the whole, that it was undesirable for any such body as the Council to do the whole of its work itself. It was desirable to employ outside contractors for work it could not do so well as they. There were certain works the Council might do with advantage to the public and in a fairer way, if not in a better manner, than the contractors. In the case of the Blackwall Tunnel there was special risk, and it would have been better not to undertake it.

In reply to Mr. Alderman Beachcroft, Mr. Plumbe said that, since May, 1894, he had been in the employ of the Department and had had no special difficulty to contend with. He denied that, when completed, there was bound to be a loss at Boundary-street. A return made a few days ago showed that when all charges were included, with a charge for extra work of 1,070*l.* which would about balance that for deductions, there would be a balance of about 600*l.* to complete the job, and he was under the impression that there would be no loss. The Shelton-street job was one of the most unfortunate that a builder could possibly have undertaken. They had hardly started when the new act came into force and many alterations were made in accordance with its provisions, which need not necessarily have been made. There was delay from the ruinous condition of the neighbouring properties, which had to be shored up, and from strikes among the builders, carpenters, and plasterers, but he confessed he was somewhat surprised at the amount of the loss, and he thought more inquiry was required, and he had asked for it because he did not think so much could have been lost.

In reply to Dr. Collins, the witness explained what he meant by "loss," and "estimate of the Works Department." It did not necessarily follow that where a loss was shown, the Council had not received good value for money. As far as he had observed the quality of timber used was equal to that used by contractors, though from one job at Clapham a small lot had been sen away. He had found no fault with the ironwork

except on account of delay, the mortar was very good, and he had good foremen, especially at Boundary-street (Mr. Jacobs). Mr. Plumbe would strongly advise the Council not to give work out to open competition. They should invite only men they knew to be capable of doing the work properly.

In reply to Mr. Gruning, the witness said he was aware of the new contract between the Institute of British Architects and the Builders' Association. He had used it ever since it came out, and had had no difficulty.

Mr. Gruning: Have you had more or less difficulty with the Department than with contractors in settling accounts.—I have had no trouble with the Department. Where you have had to condemn materials does the loss fall upon the public?—Yes; on the Department. Mr. Gruning: But in the case of a contractor it would fall on the contractor personally?—It would.

If contingencies occurred in a job undertaken by the Works Committee, there might be a loss to the Department?—That is so. A contract might be done cheaper by a contractor.

The inquiry was adjourned, after one or two further questions from Mr. Waterhouse and Dr. Longstaff.

The examination of one of the Labour representatives on the Council, Mr. Alderman Taylor, interrupted to admit the evidence of Mr. Holloway and Mr. Burt, was resumed on the 12th inst., by Dr. Longstaff, whose questions with regard to "the man at the gate" (the ticket steward) and the method adopted when men became members of the union, only elicited the reply, "I would rather not answer."

The witness was invited to make any further statement he wished, when he adduced a number of statistics with a view of showing that in a large number of cases the amounts of contractors' tenders, which commenced by being below the Architect's tenders, had jumped up in the course of a few months to 8, 12½, 15½, and even as much as 18 per cent. above his estimates. These figures showed, the witness contended, that either the Architect's estimates were being cut down, or that builders were increasing their tenders.

Asked by Sir Godfrey Lushington with regard to the made claim that men worked better for the Department than for a contractor, the witness admitted that the better the quality of work, the longer the time occupied was, and that the true explanation might be that the workman in spending an inordinate time over it merely desired to make more work for himself.

Sir Godfrey Lushington: Would it not be your duty, as a salaried officer of the union, to see that the practices of the trade unions were observed?—Yes; to advance its interests.

Then you serve two masters?—I don't think I do.

Are the trades unions your masters?—I am not bound to them body and soul.

After your visits to works did you report to your union?—Yes; frequently.

Finally the witness was asked, Do you think it right for the London County Council to engage in work at a loss in order to help workmen?—I have not considered the question.

Mr. John Burns, M.P., was then called and examined by Sir A. Arnold as to the visits of Labour members of the Works Committee, as to the advantage to workmen of having a scheduled list of wages, what security the labourer would lose by the abolition of the wages clause, and as to the quality of the work done by workmen in the employ of the Department. To all these questions Mr. Burns gave answers in harmony with those of the previous witnesses with whom he works. He could see no reason why the Works Committee should be reduced below twelve members, and adhered to his opinion that that number was necessary.

In reply to Alderman Beachcroft, the witness still maintained that the withdrawal of tenders justified him in making the statement that the contractors had formed a ring against the Council. The witness gave a number of reasons why he was pledged to the principle of the direct employment of labour.

Mr. Beachcroft: You have omitted one object—to obtain control of the labour market. Oh! I don't claim that. In reply to Mr. Gruning, the witness said he believed, in case of a general strike, the men in the employ of the Department would do precisely as they would if working for contractors, and in the case of a lock-out in the building trade he did not see why the County Council should sympathise with the builders, or close their works. Some builders did not sympathise in lock-outs.

Mr. Gruning: Had there been any difficulty in obtaining tenders before 1892?—I would not like to answer that question off-hand.

In reply to other questions, Mr. Burns said he believed public bodies ought to do engineering work successfully, and he did not see why they should not build a town hall. It was only the "cussedness" of partisanship in the Council that prevented them from doing all work cheaper and better than contractors. The inquiry was further adjourned to Wednesday, the 17th inst.

ARCHÆOLOGICAL SOCIETIES.

LONDON AND MIDDLESEX ARCHÆOLOGICAL SOCIETY.—An afternoon meeting of the members of this Society was held on the 8th inst., at St. Michael's Church, Wood-street, Cheapside, preparatory to its demolition. Mr. Philip Norman, F.S.A., met the visitors and described the church. It was destroyed in the Great Fire of 1666, and afterwards rebuilt by Sir Christopher Wren. An evening meeting of this Society was also held the next day, at the London Institution, Finsbury-circus, when Canon Benham presided. Mr. Charles Welch, F.S.A., pointed out and described some Roman pottery, &c., which had been recently discovered in the heart of the City during the excavations of the new London Central (Electric) Railway in Threadneedle-street. There were some large fragments of a broken amphora, with some vessels that had been found inside, and which were exhibited to the members. There was also a cinerary urn, which was found a few feet east of Princes-street. The Rev. James Christie next read a paper on "The Parishes of St. Michael, Wood-street, and St. John Zachary, and their Records." He exhibited several ancient minute books, and described the various changes through which these churches had passed from 1625 and onwards. Stow, the historian, asserted that there was interred in the Church of St. Michael the head of King James IV. of Scotland, but without any outward monument. Mr. Welch also produced and described a manuscript book containing a plan of the churchyard of St. Mary Abchurch, with particulars of burials prepared by order of the churchwardens in 1732. In the cases of some of the coffins only six inches of earth sufficed to cover them, and several of the graves contained three or four bodies.

SOCIETY OF ANTIQUARIES. — February 11. The Right Rev. the Bishop of Stepney, Vice-President, in the chair.—The following resolution was proposed by the Rev. G. W. Minns, seconded by Sir Samuel Montagu, Bart., M.P., and carried unanimously:—

"The Society of Antiquaries of London having heard that the sanitary welfare of the Borough of Southampton demands the removal of some ancient and dilapidated dwellings, respectfully urges upon the Mayor and Corporation the importance of preserving ancient landmarks of historic interest. It hopes that an ancient vault of the fourteenth century in Simnel-street may be carefully preserved, connected as it is with the commercial history of the town and the privileges it enjoyed in olden time."

Mr. A. Wyon exhibited and presented casts of a fifth great Seal of Charles II., and impressions and casts of some modern episcopal seals. Sir J. C. Robinson exhibited a double mazer, mounted in silver-gilt, probably German work of the end of the fifteenth century. Chancellor Ferguson, as Local Secretary for Cumberland, reported the discovery, (1) at Gosford, of a coped tombstone of the "hog-back" type, decorated on one side with knot-work and interlacing ornament, on the other with two groups of warriors; (2) of a cinerary urn at Carlisle; and (3) a mutilated and defaced Roman altar at Baldwinholme, near Carlisle. The Chancellor further reported briefly on the excavations made on the line of the Roman Wall during the past summer. Professor John Ferguson read the first section of a paper on "The Secrets of Alexis," a sixteenth century collection of medical and technical receipts.

ENGINEERING SOCIETIES.

THE INSTITUTION OF JUNIOR ENGINEERS.—At the meeting of this Institution, held at the Westminster Palace Hotel on the 12th inst., the Chairman, Mr. H. Bloomfield Vorley, presiding, a paper on the "Manufacture of High-class Bridge Work" was read by Mr. J. A. Macpherson, of London. He said there were two systems of setting-out practised at the present time:—(1) by wood template; (2) by using the actual plates and bars as templates from which to mark every corresponding piece. The author showed how the employment of the wood template method might be accepted as producing the best results. The direct system, however, being more expeditious (if the material were to hand) was very beneficial applied in ironwork for the building trades where high finish was not required. Great responsibility rested upon the leading template maker. It was necessary that he should cultivate a system by which hitches might be most effectually avoided during the progress of the work. Fixed trammel gauges were far superior to the common rules for measuring corresponding parts, absolute exactness being highly essential for all intermediate portions. Owing to the variable nature of the metal due to change of temperature, reliable check was required to be taken of all the important measurements by noting the temperature at the time of measuring. I was shown how the necessary camber in a bridge complicated the process of manufacture, and an example was given of a convenient and economical method of producing the correct camber in a web girder. In considering the question of the bearing surfaces the unsatisfactory bearing due to the deflection was partially remedied (apart from introducing expensive knuckle bearers) by making the plane of the bearing surface a mean between the horizontal and the continuation of the camber line. In illustration of the methods of setting out the rivet holes, &c., a 50-ft. single web girder was taken, and all the operations described. The desirability of no two holes coming opposite in small angles, so as not to weaken the section and avoid difficulty of riveting, was pointed out. In referring to lattice constructions, the author showed that theoretically a lattice girder formed a segment of a very large circle, and the true lengths of every member could be readily obtained by mathematical calculation. This method gave far more satisfactory results than the old-fashioned rule of thumb and laborious process of drawing down the girder full size on a floor, and fitting the templates to the lines. Difference of opinion existed as regards the size of rivets and rivet holes, some preferring the rivets to be the size figured on the drawing, and the holes $\frac{1}{32}$ in. larger; others that the holes should be the size figured, and the rivets $\frac{1}{32}$ in. smaller. In the designing of iron and steel work the ultimate erection of the structure should always be borne in mind, the parts being made as far as possible universal and interchangeable to facilitate putting together. Individual knowledge and skill were more essential in the economical production of first-class work than extensive and elaborate plant.

THE PAVIORS' COMPANY.

AT the invitation of the Master, Wardens, and Court of Assistants of the Worshipful Company of Paviors, a large company assembled at the Carpenters' Hall on Tuesday to meet the Lord Mayor and Sheriffs at dinner. Mr. F. Bennett, the Master of the Company, presided, and there were also present the Bishop of Stepney, Lord Rodney, Sir F. Dixon-Hartland, Mr. A. Cock, Q.C., the Dean of St. Paul's, Sir Hugh Owen, Professor Aitchison, A.R.A., Mr. Alexander Graham, F.S.A., Professor Banister Fletcher, and others.

The loyal and patriotic toasts having been honoured,

Sir Hugh Owen proposed, and Mr. Cock, Q.C., responded, to the toast of "Bench and Bar."

The Chairman then proposed "The Lord Mayor and Corporation," the Lord Mayor responding.

The toast of "The Carpenters' Company" was given by Major L. H. Isaacs, who referred to the excellent work which the Company is carrying on in its technical education classes and instruction, and the good uses to which they put their fine hall.

The Master of the Carpenters' Company briefly replied, remarking that the Company spent nearly 5,000*l.* a year in educational work alone.

Mr. D. Burnett, the chief Commoner, proposed the "Paviors' Company," and the Master, in reply, said that the Company was one of considerable antiquity, and according to Stow it dated back to the fifteenth century. After a period of extinction, the Company was resuscitated fifteen or twenty years ago. They were doing all they could to justify their existence, and they had offered prizes recently, and had received some very good essays which had been put to practical results.

Other toasts followed.

Illustrations.

MONUMENT, BRADING CHURCH.

THE Alton tomb lately erected in the Oglander Chapel of Brading Church to the memory of Sir Henry and Lady Oglander was designed by Mr. James C. Powell of the Whitefriars Glass Works, and carried out under his supervision. The tomb is of white alabaster, the slab and base being of slightly coloured alabaster, and stands on a step of black marble. The panels are of Rosso-antico with gilt lettering, and a slab of the same material has been inserted as a background to the mantling of the central panel. The border round the tomb is composed of glass enamel work in blue and gold. The top slab is incised with inscription and arabesque, and inlaid with small pieces of blue and red glass enamel.

The two figures at either end were modelled and carved by Mr. H. A. Pegram; the remainder of the carved work was carried out by Messrs. Earp & Hobbs.

The heraldry and ornament is further enriched by painting and gilding.

There are in the same chapel four old altar tombs to ancestors of the same family.

COMPETITION DESIGN FOR LIVERPOOL MUSEUM EXTENSION.

THIS design, submitted in the recent competition, was understood to have been disqualified on account of overstepping the limits of the site on the Byrom-street frontage. The instructions stated that competitors were at liberty to exercise their discretion as to the building-line towards this and the back street, and this was interpreted in a literal sense, and a "give and take" line adopted; which was, however, still well within the general line of the street. Considerable advantage was thus gained both in internal accommodation and in external treatment, and it is difficult to see what objection can be urged against it.

The existing museum building, being a complete composition, it was felt that the correct treatment was to design a building which should harmonise and group with it, rather than extend it.

The accommodation generally was slightly in excess of the requirements, and every room and corridor was well and efficiently lighted and ventilated. The lecture-hall was so arranged as to be used either independently or in conjunction with the technical school. H. T. H.

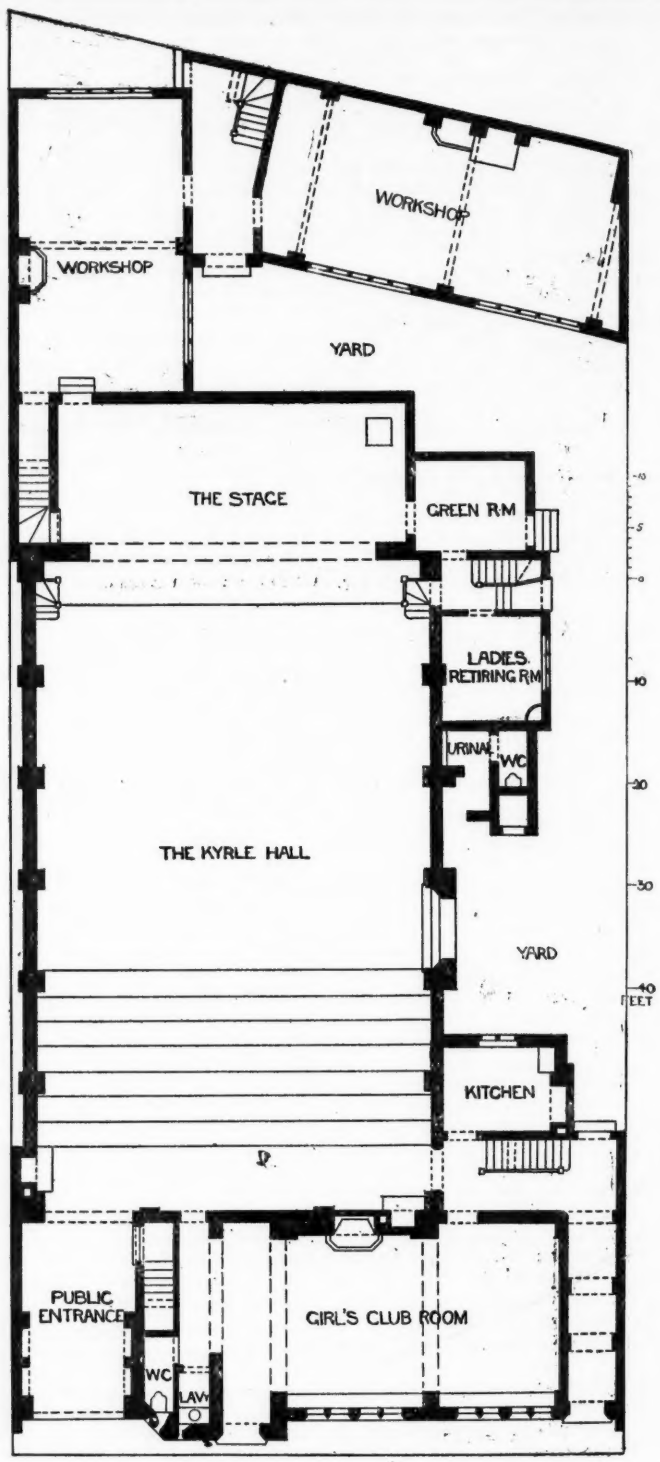
HOUSE, SUNDRIDGE PARK, KENT.

THE site of this house is an old orchard, now converted into a picturesque garden, which lies on the outskirts of Bromley, in a position commanding extensive views over wooded country. The materials employed for the exterior are red bricks, with tile-hanging and stone dressings. The roofs are covered with Reading tiles. In addition to the accommodation shown there are six bedrooms, dressing-room, bathroom, &c., on the upper floors, with cellerage in the basement. The builder was Mr. R. S. Robertson, of Edgware-road, N.W., and the architects Messrs. Gibson & Russell.

THE KYRLE HALL, BIRMINGHAM.

THE Kyrle Hall, in Sheep-street, Birmingham, is the centre of the local Kyrle Society's work. Here, facing the street, are club-rooms for girls, men, and boys, together with committee room, library, and caretaker's dwelling. The centre of the site is occupied by a large hall, capable of seating 600. It has a stage, with adjoining dressing rooms for the free dramatic performances given on Saturday evenings throughout the winter months. In the rear are the workshops of the Birmingham Guild of Handicraft, where printing, bookbinding, and metal work are carried on, specimens of which were to be found in the last Arts and Crafts Exhibition. The buildings were erected in 1893 from the designs of Mr. W. H. Bidlake, at the cost of about 4,000*l*. The builder was Mr. John Bowen.

MASONIC TEMPLE, GREENOCK.—The foundation-stone of the new Masonic Temple at Greenock was laid recently. The building is being erected at the corner of Argyle and West Stewart streets, and, it is estimated, will cost 4,000*l*. Messrs. Boston Menzies & Morton are the architects, and Mr. William Steel is the builder.



The Kyrle Hall, Birmingham. Plan.

LONDON AND PROVINCIAL BUILDERS' FOREMEN'S ASSOCIATION:

ANNUAL DINNER.

THE Annual Dinner of this Association was held on Saturday last at the Holborn Restaurant, Mr. B. G. Thompson occupying the chair.

The toast of "The Queen and Royal Family" having been honoured,

The Chairman briefly proposed the toast of the evening, "Success to the London and Provincial Builders' Foremen's Association." He had, he said, carefully studied all the rules and objects of the Association, and he considered that they were worthy of encouragement and support, both from builders' foremen and master builders. A builders' foreman's duties were of an arduous and responsible character, for he had many different interests to consider, and much tact and management were necessary in carrying out his duties.

Mr. G. Barclay, the President of the Association, in reply, said that the success of that gathering augured well for the future. The Association was founded in 1894, when the London County Council took the important step of inaugurating its Works Department. It was thought that foremen ought to have a society, especially of a social character, and as soon as the Association was founded, thirty-three foremen joined, while now their membership was about seventy. Of the thirty-three original members, the names of thirty were still on the books. He had been asked why the Association was started, seeing that another similar society was in existence. It was out of no antagonism to that society—and he might add that some of its members belonged to their Association—but was the result of a desire partly to admit to membership foremen who were beyond forty years of age. There were many capable foremen beyond the age limit set by the Builders' Foremen and Clerks of Works Institution and the Association had decided to considerably extend that age limitation. Another reason for establishing the Association was that since many of their members already belonged to some provident society, and it would tax them too severely to ask them to belong to another, it was thought better to encourage foremen to join an association in which the work of a provident society was not attempted. In his opinion there was scope for both associations. His Association made a special appeal to master builders to make use of their employment bureau, and to write to their secretary if in need of a competent foreman. The membership subscription was 1*l*. per annum, and out of that they gave an out-of-work foreman 10*s*. for the purpose of advertising for a situation. They had monthly meetings, at which papers were read and discussed,

and the Association was, in short, an excellent means of intercourse between foremen. In conclusion, he said he hoped that they would receive support from master builders who could help them by becoming honorary members.

The Chairman then proposed "The Building and Kindred Trades." The building trade, he said, and no doubt the kindred trades, had for some years past suffered from a time of depression, but there were signs of improvement everywhere, he was glad to say.

Mr. J. M. Wales, Clerk of Works to the London School Board, in reply, referred to the great indebtedness of builders to foremen. Both should work together, he said, for the good of each other. He quite agreed that it was absurd to limit to forty years the age of a candidate for admission to an association like theirs.

Other toasts were "The Chairman," proposed by Mr. Chinery, Vice-President; "The Visitors," proposed by Mr. A. Warren, Secretary, and responded to by Mr. Pullman, of the firm of Messrs. Hobbs, Hart, & Co., and "The Press," proposed by Mr. Young.

CENTRAL ASSOCIATION OF MASTER BUILDERS OF LONDON.

THE twenty-fifth annual general meeting of this Association was held at the offices, 31 and 32, Bedford-street, Strand, London, W.C., on Wednesday, the 10th inst., the President, Mr. Henry Holloway, being in the chair.

The notice convening the meeting and the following annual report were taken as read, the report being unanimously received and adopted:—

"1. In presenting the twenty-fifth annual report the Council are pleased to be able to state that trade continues to be in a satisfactory condition, and, but for the unceasing friction with the workmen, there is every indication of a period of prosperity.

2. The past year has been a time of exceptional disturbance with the workmen. Early in the year notices were received from the various trades demanding an increase in the rates of wages and a code of working rules. A special meeting of the members of the Association, together with other builders, was called to consider these demands, and it was agreed to concede the advance in wages to the principal trades, provided they assented to a satisfactory code of rules. In pursuance of this decision, arrangements were made for meeting each trade separately in conference. The main variations to the 1892 rules insisted upon by the Council were the following:—

(*a*) The working hours in winter to be altered—the breakfast time being abolished, the hour for commencing work being 8 a.m.;

(*b*) A rule to put an end to the practice of the trade unions striking against non-union workmen;

(*c*) The omission of the date (May 1) for the termination of rules.

3. All the trades have practically accepted the foregoing. In dealing with the second item, the Council were successful in establishing the principle of a Conciliation Board, consisting of an equal number of employers and workmen, with power to call in an umpire, for settling disputes arising out of the rules. All the trades have agreed to this with the exception of the Painters' and Labourers'. The Plasterers' Association, after being on strike for over two months, agreed to a modified form of the rule, which, however, has proved to be unsatisfactory.

4. The dispute with the bricklayers on Messrs. J. Mowlem & Co.'s works, at the beginning of last year, terminated at the end of February. The offer of arbitration made by the Council was declined by the Operative Bricklayers' Society, but the strike was afterwards formally withdrawn.

5. The scarcity of skilled workmen throughout the country is a serious difficulty, and largely accounts for the independent and aggressive attitude of the trade unions towards employers. The Council strongly urge special attention to this matter, and hope that every employer will take immediate action to deal with the difficulty by increasing the number of apprentices and improvers in all trades, but especially those of plasterers and bricklayers.

6. The case of Trollope *v.* The London Building Trades' Federation has, the Council are pleased to record, been carried to a successful issue, the plaintiffs succeeding in getting the injunction obtained last year made perpetual.

7. The Council have under consideration a proposal for putting the Association in a more satisfactory position financially by creating a reserve or contingency fund. The numerous disputes and litigation with the trade unions have caused a considerable increase in the expenditure during the past year, which the Council hope will be readily met by the members of the Association, especially as the Council consider that the result of the proceedings in the case of Trollope's Black List, before referred to, will be beneficial and of vast importance to the trade.

8. The Council take this opportunity of expressing their obligations to the members of the various committees.

9. The Council would again urge upon the members the importance of inducing those employers, who are not at present members, the desirability of joining this Association.

10. In accordance with the rules, the audited accounts will be presented to the meeting, and it will be necessary to elect two auditors and three members of the Council. The elected members of the Council who retire are Messrs. Joseph Hill, William F. King, and G. J. Lyall, all of whom are eligible for re-election."

The Secretary, Mr. R. S. Henshaw, having read the accounts for the year 1896, they were adopted. Mr. Geo. Williams and Mr. Horace S. Foster were reappointed auditors, a cordial vote of thanks being accorded to them. Mr. Wm. F. King was re-elected and Mr. W. J. Adamson and Mr. Howell J. Williams were elected members of the Council.

A vote of thanks to the Chairman for presiding terminated the proceedings.

APPLICATIONS UNDER THE 1894 LONDON BUILDING ACT.

AT the meeting of the London County Council on the 9th inst., the Building Act Committee reported that they had considered the undermentioned applications under the London Building Act, 1894, and had arrived at the following decisions. Those applications which have been agreed to are granted on certain conditions:—

Lines of Frontages.

Islington, North.†—That consent be given to the erection of the flank wall only of an addition to a house on the north side of Dresden-road, Hornsey-lane, to abut upon Ashmount-road, on the further application of Mr. W. E. Sanders, on behalf of Mr. J. Sanders.

Lewisham.—That consent be given to the erection of a house on the south side of Brookdale-road, Catford, to flank upon Schuckburgh-road, on the application of Mr. H. Hopton, on behalf of Mr. J. Laird.

Battersea.—That consent be given to the erection of bay windows to four blocks of residential flats on the south side of Prince of Wales-road, between Rosenau-crescent and Bridge-road, on the application of Mr. J. Halley, on behalf of Mr. J. R. Ward.

Hackney South.—That consent be given to the erection of a covered play-shed at Millfield-road schools, Clapton, to abut upon Hilsea-road, on the application of Mr. T. J. Bailey, on behalf of the School Board for London.

Hammersmith.—That the application of Messrs. Fuller & Co., for an extension of the period within which the rebuilding of the "Red Cow" public-house, No. 157, Hammersmith-road, at the corner of Colet-gardens, was required to be commenced, be granted.

Hampstead.—That consent be given to the erection of a porch in front of "Wychcombe," No. 99, Haverstock-hill, on the application of Mr. R. Groom on behalf of Mr. R. Bellamy.

Hampstead.—That consent be given to the erection of enclosures and an iron and glass addition to the porch in front of No. 11, Arkwright-road, on the further application of Messrs. F. W. Porter & Son on behalf of Mr. E. H. Mannering.

Holborn.—That consent be given to the erection of a balcony at the first floor level, in front of the Royal Music Hall, Nos. 242 and 243, High Holborn, St. Giles-in-the-Fields, on the application of Mr. E. Runtz on behalf of Mr. John Brill.

Kensington, South.—That consent be given to the erection of an oriel window in front of No. 61, Kensington-court, on the application of Mr. W. W. Gwyther, on behalf of Mr. J. Joshua.

St. George, Hanover-square.—That consent be given to the erection of an iron and glass hood in front of No. 179, New Bond-street, on the application of Mr. E. W. Wimperis, on behalf of Messrs. Lafayette.

St. George-in-the-East.—That consent be given to the erection of a wood and iron lookum in front of the Eagle Brewery, Wellclose-square, on the application of Messrs. A. Kinder & Son, on behalf of Messrs. H. Greenfield & Co.

Wandsworth.—That consent be given to the erection of an iron and glass covered way in front of Wandsworth Town Hall, High-street, on the further application of Mr. G. Patrick, on behalf of the Wandsworth Vestry.

Dulwich.†—That consent be not given to the erection of three houses with one-story shops and an arched entrance, on the north side of Park-road between No. 77, and Gorleston Villas, on the application of Mr. J. Bartlett.

Dulwich.—That consent be not given to the erection of a building on the west side of Peckham Rye, on the north side of No. 138, at the corner of East Dulwich-road, and the erection of a house in that road adjacent to and eastward of No. 3, on the application of Mr. A. Keen on behalf of Miss E. Chamberlin.

Hampstead.—That consent be not given to the erection of six one-story shops on the north-west side of Belsize-road, upon part of the grounds of Nos. 2 and 4, St. George's-road, on the application of Mr. J. Mackland on behalf of Captain Bagot, M.P.

Lewisham.—That consent be not given to the erection of a building with one-story shop next No. 304, Brockley-road, at the corner of Comerford-road, on the application of Mr. J. Webster on behalf of Mr. J. Chappell.

Paddington, South.—That consent be not given to the erection of an iron and glass covered way in front of No. 1, Southwick-street, Hyde Park-square, on the application of Messrs. R. Hogg & Son.

Width of Way.

Hammersmith.—That consent be given to the erection of three houses with bay windows, on the west side of Ceylon-road, Blythe-road, with the forecourt boundary of such houses at less than the prescribed distance from the centre of the road, on the application of Mr. W. J. Burns.

Holborn.—That consent be not given to the construction and erection of a wood and iron room, for cleaning carpets, adjoining a warehouse on the west side of Newton-street, High Holborn, St. Giles-in-the-Fields, on the application of Messrs. Simmonds Bros., Limited.

Width of Way and Space at Rear.

Finsbury, Central.—That the Council, in the exercise of its powers under Sections 13 and 41 of the London Building Act, 1894, do not consent to nor permit the erection of four blocks of dwellings adapted to be inhabited by persons of the working class, with shops on the ground floor, on plots A, B, C, and D of the Council's land in Rosebery-avenue, Clerkenwell, with portions of the buildings at less than the prescribed distance from the centre of Jelley's-yard and Garnault-mews, and exceeding in height the width of those streets respectively, and also with irregular open spaces at the rear of the new buildings, on the application of Messrs. Goren & Tapp, on behalf of Mr. H. Roffey.

Open Space at Rear and Projections from Buildings.

Hampstead.—That the Council, in the exercise of its powers under Section 73 of the London Building Act, 1894, do not consent to the erection of a block of residential flats on the west side of Langland-gardens, at the corner of Finchley-road, with an enclosed porch, projecting balconies, turret and four-story bay windows; and that the Council, acting under Section 41 of the Act, do not allow a modification of the provisions of that section with regard to open spaces about buildings, so far as relates to the proposed erection of the said block of flats with an open space at the rear, on the application of Messrs. Boehmer & Gibbs on behalf of Mr. E. A. Cave.

Open Spaces about Buildings.

Norwood.—That the Council do, in the exercise of its powers under Section 41 (1) (vi.) of the London Building Act, 1894, allow a modification of the provisions of that section with regard to open spaces about buildings, so far as relates to the proposed erection of a dwelling house on the north side of Harpenden-street, Norwood-road, at the corner of a passage leading to a timber yard, with an irregular space at the rear of the new house, on the application of Mr. H. Bignold on behalf of Mr. T. Crabb.

Southwark, West. — That the Council do not permit the erection of a stable, with loft and two living rooms over, and of a harness room and one-story stable at the rear of Nos. 15, 17, and 19, Gray-street, Blackfriars, without an open space at the rear of each of the new buildings, on the application of Mr. H. Smith on behalf of Mr. C. King.

Line of Fronts and Width of Way.

Strand.—That consent be given to the erection of buildings on the site of Nos. 13, 14, and 15, Broad-court, and Nos. 19 and 20, Bow-street, St. Martin-in-the-Fields, on the application of Mr. R. S. Wornum, on behalf of the Duke of Bedford.

Strand.—That consent be given to the erection of an enclosed iron footbridge across Northumberland-street, Strand, to connect the Grand Hotel with No. 1, Northumberland-street, St. Martin-in-the-Fields, on the application of Mr. W. Woodward, on behalf of the Gordon Hotels, Limited.

Lewisham.—That consent be not given to the erection of one-story shops upon part of the forecourts of No. 29, 31, 33, 35, 37, and 39, Ladywell-road, on the application of Mr. G. Kimble, on behalf of Mrs. F. Kimble.

Peckham.—That consent be not given to the erection of nine houses with projecting bay windows on the west side of Lower-park-road, and also of eight houses with similar bays on the south side of Commercial-road, on the site of Nos. 72, 74, 76, 78, 80, 82, 84, 86, 88, and 90, Lower-park-road, on the application of Messrs. Benison and Bargman, on behalf of Mr. Pennack.

Width of Way and Cubical Extent.

Marylebone, East.—That consent be not given to the erection of an iron and glass roof over a por-

tion of Duke's-mews, Lisson-grove, on the further application of Messrs. Wylson & Long on behalf of Messrs. Spencer, Turner, & Boldero.

Formation of Streets.

Lewisham.†—That an order be sealed and issued to Mr. H. H. Fuller, sanctioning the formation or laying out for carriage traffic of a street, 50 ft. wide, to lead from Honor Oak-road to Devonshire-road, on the Oakfield estate, Forest Hill, on his further application to the Council.

Strand.—That an order be sealed and issued to Mr. C. Stanley Peach, sanctioning the formation or laying-out of a passage-way 10 ft. wide, for foot traffic, to lead from Carnaby-street into Marlborough-row, St. James's, and the erection of an addition to the central electric lighting station on the north side of such passage-way, to abut also upon Carnaby-street and Marlborough-row, on his application to the Council on behalf of the St. James's and Pall-mall Electric Light Company, Limited.

Hampstead.—That an order be sealed and issued to Mr. W. E. Sanders, sanctioning the formation or laying out of a street, 42 ft. wide, for carriage traffic, to lead out of Haverstock-hill into Lawn-road, on his further application to the Council on behalf of Mr. J. Sanders. That the name Downside-crescent be approved for the new street.

Dulwich.†—That an order be sealed and issued to Mr. W. Hancock, refusing to sanction the formation or laying out of a street 40 ft. wide, for carriage traffic, to lead from the east side of Denmark-hill into Daneville-road, Camberwell, and also the formation or laying out of a spur street, 90 ft. long and 30 ft. wide, to lead out of such new street, on his application to the Council on behalf of the Oriental Palace of Varieties Company, Limited.

Height of Buildings.

City of London.—That consent be given to the erection of a building on the south side of Tallis-street, at the corner of Carmelite-street, to exceed in height the width of each of those streets, on the further application of Messrs. Robertson & Ellis, on behalf of Messrs. Harmsworth Brothers, Limited.

Cubical Extent.

Battersea.—That consent be not given to the erection at the London Road Car Company's premises, Wellington-street, to abut upon the river Thames, of a forage-preparing granary, with openings in the party walls to connect it with a hay store on the west side, and a covered yard on the east and south sides, communicating with other premises in the same occupation, together exceeding in extent 450,000 cubic feet, on the application of Mr. P. Dollar, on behalf of the said company.

Buildings for the Supply of Electricity.

Strand.—That the Council do approve of the plans, dated January 28, 1897, submitted with the application of Mr. C. Stanley Peach, on behalf of the St. James and Pall Mall Electric Light Company (Limited), for the construction of an addition on the south side of their central generating station and works in Carnaby-street, Regent-street, St. James's.

Recommendations marked † are contrary to the views of the Local Authorities.

Correspondence.

To the Editor of THE BUILDER.

LONDON WATER SUPPLY AND THE REMOVAL OF THREE-GALLON FLUSHING TANKS.

SIR,—I am in perfect sympathy with the efforts of your correspondents, Messrs. Carter, Tidman, Lawford, and Hubert, whose letter upon this matter appears in your issue of last week. It would be bad enough if the Companies were insisting that in future the maximum shall be a two-gallon flush, but to put persons to the expense and inconvenience of removing all three-gallon flushing cisterns is grotesquely ridiculous, to say nothing of the unfairness of the proceeding; and, as your correspondents point out, it is high time that this and other such arbitrary powers of the Water Companies should not be tolerated longer than is absolutely necessary.

This extraordinary arbitrariness on the part of the London Companies is certainly another nail in their coffin, and I trust it will awaken so much distrust in sanitarians as will lead to such discontent on the part of the general body of consumers as will bring about the change so much desired by all classes of people who have the health and welfare of the people at heart, viz., the placing of the water supply in the hands of the consumers themselves.

I believe there are very few persons who have experimented with the two-gallon flush under conditions as commonly existing—and which conditions it is often physically impossible to alter—who would say that a two-gallon flush is sufficient. I am aware that experiments have been made, and I have heard them described, to prove that a two-gallon flush is sufficient; but these experiments have been, in fact, only theoretical in nature, and although they may be interesting, particularly to the experimenters, in practice they are valueless. What we have to contend with is a set of conditions as they exist in practice, and there are a number of observant men who are daily in contact with conditions as they are usually met with, and they are practically unanimous in advocating a three-gallon flush, and such testimony as theirs should be accepted as it is given, solely in the interest of the community at large, and without fee or award of any kind.

My own impression is that the companies will gain little, if anything, by their uncalled for action, as oftentimes the water closets will be flushed two or three times in order to effectually remove all the soil from the trap. The advice to all users of water closets until the companies give way should be "Flush before and after using," and these directions should be printed on a card and hung up in every water closet.

It is surely high time that the public, not only of the Metropolis, but of other towns and districts supplied by private companies, should arise to the necessity of getting the water works in their own hands, and thus prevent undue monopoly of nature's gift to man.

I have known water companies' inspectors carefully measure flushing tanks after they have been fixed, with standard measures, and condemn the tanks on account of their holding a little more than two gallons. Such behaviour as this is extraordinary, and I am sure it cannot be suffered much longer. I would suggest memorialising the Local Government Board, or even Parliament, upon this important matter, and I should be pleased to undertake to get the signatures of practical men in this district.

T. J. MOSS FLOWER,
Assoc. Mem. Inst. C.E.

Bristol, February 16.

THE A.A. "DISCOVERY" OF A THIRTEENTH CENTURY ARCHITECT.

SIR,—In your last issue you reproduced a thirteenth century drawing of King Offa and his Architect, exhibited by Mr. A. S. Flower in reading his interesting paper at the A.A. on the 5th inst. According to your report of the discussion which followed, the President said, "The portrait of the mediæval architect that he (Mr. Flower) had discovered . . . . would no doubt mark that meeting as historic. They might think that he was unduly exaggerating the importance of this discovery, but he believed that the point would receive, through the publicity it would gain in the press, the attention it deserved." And Mr. W. H. Seth-Smith said, "The illustration . . . . would mark an epoch in the information which they had on the subject."

But they had forgotten their Viollet-le-Duc. The first volume of the *Dictionnaire*, published in 1858, contains (p. 115) a reproduction of the figures of King and Architect from the same drawing.

JOHN BILSON.

*** Two other correspondents write that the illustration is given in Green's "History of the English People," and in Gardiner's "Students' History of England."—ED.

PAVILION COMPETITION, WESTON-SUPER-MARE.

SIR,—Doubtless many of the competitors in the above competition—the drawings for which were sent in on December 11 of last year—are anxiously awaiting some information, and, although nothing has appeared in the professional papers, nor has any intimation been sent to any of the competitors, I am in a position to state what has transpired up to the present.

Under the terms of the competition, a professional assessor would be appointed to select three schemes to the authors of which would be awarded the respective premiums of 50*l.*, 20*l.*, and 10*l.*, and the Council "absolutely reserve to *themselves* (I am quoting from their advertisement) the right to carry out such one of the three premiated designs as they may consider best adapted to the requirements of the town, and the architect thereof will be appointed architect of the works if carried out at an inclusive remuneration of 5 per cent. to cover all charges and expenses."

Mr. Alexander Graham, of London, was appointed assessor, and he has placed the designs "Promenade," "Stability," and "Straight and True," first, second, and third respectively, and these designs are now being publicly exhibited in premises adjoining the market.

From the local press and other sources I gather that there is a strong feeling against carrying out any of the three premiated designs, and it is commonly reported that some of the rejected designs find much favour with many members of the council, one in particular. Will this be found to be by a local man?

This my plain unvarnished tale, which will doubtless serve to arouse to some course of action the authors of the three designs selected by Mr. Graham. Personally I am absolutely ignorant of the identity of any of these gentlemen, and only write in the interest of fair-play and justice. Unless this farce of competition is not to become more corrupt than it already is, something must be done. Who is to lead us? the profession certainly expects the Institute, which, whatever its faults, is the recognised mouthpiece of the majority of the profession.

"NON SIBI."

RISKS OF ADVERTISERS.

SIR,—In the *Builder* of January 9 appeared the following advertisement:—"Architect's junior assistant required in City office. Only those with some artistic taste need apply, stating terms and previous experience, to P. H., 16, Royal Exchange, E.C."

I applied by letter, also sending several drawings upon which I had expended much time. I asked for the return of the drawings, and enclosed stamps for the purpose. A month has now elapsed, and my drawings have not yet been returned, nor any reply received, although I have again written.

Inquiries have been made at the address given, which we found to be the City Advertising Company, and the clerk there said he did not know the address of the advertiser.

Although I fear my drawings are lost to me, still the warning may put other assistants on their guard, and induce them not to reply, or at least not to send drawings of any value, or stamps, to the unknown.

"SOLD."

BRISTOL ARCHITECTURE.

SIR,—I notice in your article on Bristol Architecture that the design of the Dock offices, Queen-square, is attributed to Mr. Drake. The building was designed by me. W. V. GOUGH.

Bristol, February 13.

*** We much regret the mistake.—ED.

The Student's Column.

SPECIFICATIONS.—VIII.

JOINER.

IN this case, as with the carpenter, the precise determination of the quality of wood required is the first consideration, and the student will, of course, bear in mind that it does not necessarily follow that the deals and fir timber from the same port are of equal quality or equally suitable for the different work of the carpenter and the joiner. Thus, whilst crown Memel may be taken as representing the highest quality of fir timber for carpentry work, Onega and Archangel deals are about the best suited for joinery.

Materials.—The deals to be of (approved) quality yellow or red deals, from (Russian) ports, but for panels only of internal doors and framing, American red or yellow pine of approved quality may be used. (This is, of course, a matter for the architect's discretion. If there is no objection to American wood, it should be thus stated in the specification.) All deal and pine to be perfectly sound and well seasoned, cut out perfectly free from sapwood, large, loose, or decayed knots and other defects.

The fir for casement and door frames and other joiner's work to be cut out of (approved) quality red or yellow fir of bright colour and straight grain, and free from knots.

(If the work is practically entirely in deal, the oak for sills and the small amount of other hard wood required, as mahogany for water-closet seats, can have their quality stipulated under this section, but if there is a considerable amount and variety of, say, wainscot or other special wood, it is as well to make a separate heading, and write the description of all work in that wood together.)

The oak for sills and thresholds to be sound, well grown, and properly seasoned oak of English growth.

Workmanship.—All joiners' work to be wrought and finished according to the detail drawings, with a clean, even, and smooth surface from the plane, and no sand paper is to be used.

The dimensions and thicknesses of joiners' work, figured on the drawings or described in this specification, are the original ones out of which the joinery is prepared, and not the finished thicknesses after planing and cleaning down. (This being the usual practice of joiners, it is as well to adhere to it and save confusion. It is often specified that the sizes are to be finished sizes when fixed; but bearing in mind the way in which joinery is prepared, legitimately, from deals, it is really irrational to expect that finished

sizes shall be exact in inches. The finished thicknesses should be stated in sixteenths of an inch, as a "$1\frac{3}{16}$ inch door," and so on.)

All glued joints to be feather-tongued, and the glue to be a mixture of equal parts Scotch and French glue, used fresh. External work to be put together in white lead.

The joiners' work is to be put together without wedging, and placed in a hot-stove room for at least one month before finishing, and any which may split, shrink, part in the joints, or show flaws or other defects, is to be removed and replaced with new material.

The floors, after being laid, are to be protected with a thick covering of dry sawdust until completion, and treads of stairs to be protected with rough cover boards.

Floors.—The floors of to be laid with $1\frac{1}{4}$ in. yellow deal flooring in half batten widths, grooved and tongued with rebated heading joints, and mitred borders to hearths. These floors to be secret nailed.

The floors of to be laid with inch yellow batten flooring, ploughed and tongued with hoop iron, with splayed heading joints, and mitred borders to slabs.

The floors of to be laid with inch yellow deal straight joint flooring, with splayed heading joints, and to be covered with inch parquet flooring, to be supplied and laid by Messrs. , at p.c. price of per yard super (or quote the amount in lump sum), to be paid to Messrs. by the contractor within one month after presentation of the architect's certificate.

The floor of to be laid with mill-traversed yellow deal boarding, inch thick, laid straight joint, with butted beading joints.

Skirtings.—All skirtings to be tongued to floors, and to have tongued and mitred angles.

Put to $1\frac{3}{4}$ in. double faced and fully moulded skirtings, 15 in. high, on splayed grounds and backings.

The skirtings in to be $1\frac{1}{2}$ in. moulded skirting, 9 in. high.

The skirtings in to be 1 in. by 7 in. square skirting.

Put 2 in. by 2 in. rounded fillet as skirting to floor of kitchen.

Windows.—The windows numbered on plans to have deal cased frames, oak sunk, weathered, and check-throated sills, and 2 in. double hung ovolo moulded sashes with sash bars $1\frac{1}{4}$ in. wide. Deal cased frames to have $1\frac{1}{4}$ in. pulley stiles, and 1 in. inside and outside linings, and $\frac{3}{4}$ in. back linings, all tongued together, and the parting beads tongued to frame. All oak sills to be grooved on underside, and to have $1\frac{1}{2}$ in. by $\frac{5}{16}$ in. galvanised iron water bar bedded in whitelead, and let into groove in stone sill (or brick). Sashes to be double hung with brass bushed axle pulleys, braided cotton lines, and iron weights. All double hung sashes to have strong knite-proof brass sash-fasteners, each lower sash to have a pair of brass sash-lifts, p.c. each, and each upper sash to have a pair of brass sash-pulls, p.c. each. All double hung sashes to have moulded horns, and in place of usual bottom bead a beaded sill piece $4\frac{1}{2}$ in. by 1 in.

The windows numbered on plans to have double hung sashes as above described, but with 6 in. by 3 in. rebated, weathered, and throated transome, and 2 in. fanlight above same to match sashes in detail, and to be hung at bottom with a pair of 3 in. brass butts. These fanlights to be rebated on bottom rail, and to have externally a moulded and throated weather fillet out of $2\frac{1}{2}$ in. by $2\frac{1}{2}$ in. tongued on to rail. Fit the fanlights with wrought-iron quadrant stay-bar, with lines and pulleys to open and close fanlight from floor. (In every case the student may be advised to fix a p.c. price for each item of ironmongery, and to select his ironmongery at that price. But let it be quite clear, as enforced in an earlier chapter, what p.c. means, as ironmongery is pre-eminently a discount trade).

The windows numbered on plans to have $4\frac{1}{2}$ in. by 4 in. rebated and twice moulded casement frames, with 6 in. by $3\frac{1}{2}$ in. oak, rebated, sunk weathered and throated sills, and to have 2 in. ovolo moulded sashes with sash-bars $1\frac{1}{4}$ in. wide. These casements to be hung with a pair of 4 in. brass butts to open outwards, and to have 12 in. brass casement stay-bars with stout plates and strong brass cockspur fastening (p.c.).

The windows numbered on plans to have similar frames and casements, but these are to be fixed.

The windows numbered on plans to have $4\frac{1}{2}$ in. by 4 in. fir rebated, chamfered, and moulded frames, with 6 in. by $3\frac{1}{2}$ in. oak, rebated, sunk, weathered and throated sills, and to be fitted with 2 in. ovolo moulded sashes, the lower part fixed and the upper hung on butts as fanlight, in a similar manner to those windows numbered

The bull's-eye windows numbered on plans to have $4\frac{1}{2}$ in. by 4 in. fir rebated, chamfered and moulded frame, put together in two thicknesses and keyed with oak hammer-headed keys, and to be hung with 2 in. ovolo moulded casements on brass sash centres and fitted with white cotton cords in one length and brass screw-eyes in sash to open and close same, and brass cleat to fix same (quote p. c.).

Linings to Windows—All linings to be tongued to frames, and with tongued and mitred angles. The windows numbered on plans to have $1\frac{1}{4}$ in. framed, moulded, and panelled linings and soffits, on deal dovetailed backings. The architrave moulding around to be out of $4\frac{1}{2}$ in. by $1\frac{1}{2}$ in. with wrought, moulded, and splayed grounds 7 in. wide. The window board to these windows to be $1\frac{1}{4}$ in. rounded with moulding out of $3\frac{1}{2}$ in. by $1\frac{1}{2}$ in. below same. These windows to have $1\frac{1}{4}$ in. moulded, panelled window backs and elbows.

The windows numbered on plans to have $1\frac{1}{4}$ in. plain jamb linings and soffits, ovolo moulded on edge, $5\frac{1}{2}$ in. by $1\frac{1}{2}$ in. moulded architraves on 1 in. splayed grounds, and $1\frac{1}{4}$ in. rounded window boards. No window backs to these windows.

The windows numbered on plans to have no window linings or architraves, the plaster being continued over jambs, but they are to have 1 in. rounded windows with returned nosings.

(N.B.—If the linings correspond exactly with the classes of windows, it is well to let the description of linings follow immediately that of the windows to which they apply, but if as would usually happen where there is a considerable variety of windows as indicated in the descriptions given above, it would probably happen that one class of linings would apply to more than one kind of window. In this case it is better to specify all the window-linings together after the model given above.)

Doors.—All door frames on stone thresholds to be dowelled with 1 in. wrought iron dowels, 3 in. long.

The doors numbered on plans to be $2\frac{1}{4}$ in. folding doors, each leaf four panelled, the top and bottom panels to have raised panels, and all to be moulded both sides. The frame to be $4\frac{1}{2}$ in. by 4 in., rebated, chamfered, and moulded, and the doors to be hung thereto with one and a half pairs of 4 in. wrought iron butts to each leaf. Put a pair of 9 in. wrought-iron barrel-bolts and street-door latch, p.c. 25s. to these doors, and a pair of bronzed-iron door-knobs, p.c. 10s. each. These doors to have 6 in. by $2\frac{1}{2}$ in. architrave moulding, splayed at back for plaster. The pedimented over-door to be out of 2 in. stuff with moulded scrolls as shown on detailed drawing.

The doors numbered on plans to be similar, but the frame to have twice rebated and twice moulded transome $4\frac{1}{2}$ in. by 4 in. and 2 in. ovolo moulded fixed fanlight over. Put to these doors 8-in. rebated mortice-locks with brass furniture both sides and two keys. These doors to have $4\frac{1}{2}$ in. by 2 in. splayed architrave moulding both sides.

The doors numbered on plans to be framed, ledged, and braced with $1\frac{1}{2}$ in. framing covered with 1 in. V-jointed boarding in half batten widths, and hung with a pair of 4 in. wrought-iron butts to $4\frac{1}{2}$ in. by 4 in. rebated and chamfered frames, and to be fitted with 7 in. rounded rim dead lock and a pair of 9 in. wrought-iron barrel bolts.

The doors numbered on plans to be 2 in. five-panel doors, moulded both sides, hung with a pair of 4 in. wrought iron butts to $1\frac{1}{2}$ in rebated and beaded jamb linings with architrave mouldings out of $4\frac{1}{2}$ in. by 2 in. These doors to be fitted with 6 in. 2-bolt lever mortice locks, with brass furniture both sides.

GENERAL BUILDING NEWS.

SOUTH HACKNEY SYNAGOGUE AND CLASS-ROOMS.—The foundation stone of the South Hackney Synagogue and class-rooms was laid by the Hon. Walter Rothschild, Chairman of the Building Committee, on Sunday, the 14th inst. The new buildings will comprise a lower ground floor, containing nine class-rooms and an assembly hall, with lavatory and cloak-room accommodation for boys and girls. This floor will be fitted with sliding partitions, which, when put aside, will convert the entire floor into a great hall for prize distributions and overflow services. The upper ground floor will be the main floor of the Synagogue, and will contain accommodation for 340 men. The whole of the seats will be placed crossways, and the ark, pulpit, and reading platform will be grouped together at the eastern end of the building. There will also be on this level lavatory accommodation for gentlemen and a robing-room for the ministers. Two self-enclosed staircases will lead direct from the street to the gallery, which will contain sittings for 210 women, and two sets of cloak-rooms. The total cost, including the freehold site, will be 7,350*l.* The contractors for the whole of the work are Messrs. Brown, Son, & Blomfield, and the architect is Mr. Delissa Joseph.

NEW BUILDINGS IN BIRMINGHAM.—The following is the Building Surveyor's return of new buildings erected in Birmingham, for which plans were approved by the City Surveyor, during 1896:—Houses and shops, 1,852; business premises, 35; warehouses and shopping, 247; miscellaneous, 314; alterations and additions, 324; churches, 2; chapels, 2; schools, 2. The plans submitted for approval numbered 1,017, as compared with 797 in 1895, an increase of 220. The churches are both temporary iron structures, one being situate in City-road and the other in Cherrywood-road. The chapels, two in number, are a Baptist chapel, in Crabtree-road, and a temporary chapel, in Elkington-street. The schools are St. Martin's (Church of England), Dean-street, and Wesleyan Schools, in Benacre-street. The principal items among the miscellaneous are the rebuilding of the Gaiety Palace, Coleshill-street; a new police station, at Harborne; branch district post office, Five Ways; extension of Central Fire Station, Upper Priory; water-gas works, at Saltley and Windsor-street; extension of the Deaf and Dumb Institute, Edgbaston; reconstruction of the old Inland Revenue Offices, Waterloo-street; mission-room and institute, Freeth-street; mission-room, Garrison-lane; mission-room and Sunday School, Belmont-row. The alterations and additions include:—Alteration and extension of Unitarian Chapel, Newhall-hill; extension of schools, All Saints' Church, Hoxley; enlargement of Free Library, Aston-road; additions to Board Schools in Highfield-road, Saltley, Hutton-street, Goodrick-street, and Icknield-street; also to St. Matthias's Church School, Wheeler-street, and to schools in South-street, Harborne, and Tennant-street. Amongst the business premises are:—New premises for the National Telephone Company, Newhall-street and Edmund-street; Messrs. Newbury's, Old-square; A. R. Dean, Corporation-street; rebuilding "Hen and Chickens," New-street; residential premises, Cornwall-street and Newhall-street. During the year 773 notices have been served on property-owners and others as to dangerous buildings, projecting signs, &c. Six hundred and forty-nine square yards of land have been given up to the Corporation by owners of property setting back shop-fronts, bay windows, and other projections. Under the Factory and Workshops Acts 142 factories have been inspected, seventeen of which have been altered, and twenty-three others are now being altered in accordance with the requirements. The year generally has been a very busy one with the building and kindred trades in the city, and has been chiefly notable for the number of new warehouses and factories that have been erected, and for the many large alterations and extensions of existing factories that have been made. This has been especially marked in the cycle trades.

BOARD SCHOOLS, BILTON, HARROGATE.—These schools have been erected at New Park on a site containing 4,840 sq. yds., with a frontage to Skipton-road of 188 ft. The buildings give accommodation for 510 mixed children, and consist of central hall, with classrooms, infants' room, and cookery room grouped around; cloak rooms, teachers' rooms, heating apparatus chamber, and spare cellar in the basement. In the play-yards are play-sheds and the necessary latrines. The central hall will seat (after allowing space for platform, &c.) 300 adults on the occasion of a concert, public meeting, &c. The stone used in the buildings has been obtained from the local quarries. Welsh slates and Staffordshire ridge tiling is used on the roof. The floor of central hall is of pitch pine, laid solid on a concrete bed. An ornamental glazed brick dado surrounds the whole of the rooms on ground floor, with the exception of teachers' rooms. The contracts for the whole of the works (including master's house) amounted to about 6,100*l.*, and have been carried out by the following contractors:—Mr. H. Abbott, mason, Harrogate; Mr. G. H. Carrick, carpenter and joiner, Harrogate; Mr. J. Shepherd, slater, Harrogate; Messrs. Laycock Bros., plasterers, Harrogate; R. & C. Barran, plumbers, Leeds; Mr. S. M. Farlane, cementer, Leeds; and Messrs. Homan & Rodgers, concreters, Manchester; Mr. Hutton, painter, Shipley; Messrs. J. King, Ltd., heating engineers, Liverpool. Messrs. Illingworth, Ingham, & Co., of Leeds, have supplied the school furniture. Mr. George Fletcher is clerk of works; and Mr. George Bland, of Harrogate, is the architect.

BOARD SCHOOL, LOW FELL, DURHAM.—A new school, erected by the Gateshead School Board, at Kell's-lane, Low Fell, was opened on the 25th ult. The new school has been built from the designs of Messrs. Oliver & Leeson, of Newcastle, and provides accommodation for 880 children. It is designed on the class-room and central hall principle. Each of the two floors has six class-rooms, in addition to the usual teachers' rooms, cloakrooms, &c. The school is so planned that it may be worked either a

a separate boys' school and separate girls' school, or on the "mixed" principle. Each room is lighted from the two sides. Warmth is provided by means of hot-water pipes, and, in addition, there is a fireplace in each class-room. The school is built of Pelaw bricks, with stone dressings. The whole of the work has been carried out by Mr. Joseph Elliott, of North Shields, Mr. W. Edington having been the clerk of the works. The central hall of the school is 86 ft. by 30 ft. On the second floor are a gymnasium 86 ft. by 30 ft., a cookery class-room 38 ft. by 25 ft., a large scullery, pantry, and larder, and cloakroom. A room, 25ft. 6 in. by 64 ft., is provided for ihe purpose of manual instruction, together with two store-rooms. Two fireproof staircases are carried up as ventilating towers with ventilating turrets over them, to which extract flues are led from the various rooms. There are covered playsheds for the children. The slating was done by Mr. Wylie, of South Shields, Messrs. Dinning & Cooke supplied the heating apparatus, and the lavatories and sanitary fittings generally were supplied by Messrs. Twyford & Co.

NEW BUILDINGS, QUEEN'S COLLEGE, BELFAST.—The Lord Lieutenant of Ireland, Lord Cadogan, has just opened the Students' Union and the Pathological and Physiological Laboratories at Queen's College, Belfast. The principal elevations of the Union Buildings face University-square. A broad flight of stone steps leads to the principal entrance on the ground floor. Advantage is taken of the sloping nature of the ground to obtain a basement floor, which contains apartments for caretaker, kitchen, offices, and heating chamber. These are separated from the students' quarters, which contain a two-table billiard-room, 40 ft. by 30 ft., with bay-window recesses and wall seats. Adjoining are the apartments containing the lavatories, baths, and students' lockers. These rooms are separated from the kitchen and offices by a vestibule or under hall, 40 ft. by 10 ft., which gives accommodation for the storage of bicycles. The principal apartment is called the "M'Mordie Hall," and will be used for public meetings for the various societies in connexion with the college. It will also be available as a reading-room. The hall measures 40 ft. by 30 ft., and contains accommodation for about 400 people on the floor and gallery. The gallery runs round three sides of the hall on the upper floor, and is reached by the grand staircase. The hall is lighted at each end by large five-light traceried windows, and at the side by the large recessed bay window. The grand staircase is approached by the porch and vestibule. It is of polished oak, on a foundation of granolithic concrete. The dining-room is 30 ft. by 24 ft., is reached from the hall, and is over the kitchen, from which it is served by lifts. There are pantries and stores adjoining this department, also served by lifts from below. The upper floor contains smoking-room, 30 ft. by 24 ft., approached from the grand staircase. A class-room leads off the vestibule of the grand stairs. The committee-room is approached from the grand stairs. The building is of brickwork, picked Annadale bricks being used for facing, and Giffnock sandstone for all quoins, window and door jambs, &c. The large windows of the M'Mordie Hall and the lower staircase are filled with ornamental quarry glazing in lead, of colours to harmonise with the internal decorations, and are heraldically emblazoned, showing the arms of the college, of Belfast, of Ulster, of Ireland, and the United Kingdom. The contract for the Union Buildings was entrusted to Messrs. R. & J. Thompson, of Belfast. The work, including fittings, cost 8,000*l*. The architect is Mr. Robert Cochrane, of Dublin. The gas-fittings have been done by Messrs. Richard Patterson & Co., and the heating by Messrs. Boyd, Paisley. The pathological and physiological laboratories were also opened by the Lord-Lieutenant. The external brickwork of the building is the manufacture of the Annadale Brick and Tile Company, Belfast. The contractors for the buildings were Messrs. Fitzpatrick Brothers, Limited, of Belfast; and the heating was done by Messrs. Musgrave. The whole was designed and carried out under the supervision of the architect, Mr. Robert Cochrane, Dublin.

THEATRE, HEBBURN, DURHAM.—The new theatre which has been erected by Messrs. John Rowell & Co. at Hebburn Quay was opened on the 1st inst. Mr. Simpson was the architect, and Mr. Pringle the contractor. The theatre seats about 1,500.

BUILDING ACTIVITY, SHEFFIELD.—The Sheffield City Surveyor, in a report on the work of the Building Department during 1896, makes the following statements:—This has been without exception the busiest year since the Building By-Laws were first adopted by the Corporation in 1864. The number of plans submitted has risen from 332 in 1888 to 1,230 during the past year, or almost four times as many as those submitted in the former year, and is also an increase of 238 upon the high figures of 1895. The number of houses certified during the year was 1,059, as compared with 523 in 1895. The number of houses erected, but not certified, on account of the absence of metal gullies, specified on the approved plan, is now reduced from 476 in 1895 to 124 in 1896; the total number of houses erected 1,183, being an increase of 184 on 1895, and the largest number of houses erected in any one year since 1880, and only exceeded on three occasions since 1864, viz.:—1869, when 1,187 houses were erected; 1876, 1,448; and 1880, 1,220. The numbers of other buildings of every description erected during the year is 305, as compared with 253 in 1895. These figures have only been exceeded once since 1888, viz., in 1892, when 340 buildings were erected. The number of houses completed, but not certified, has increased from 146, at the end of 1893, to 1,052, and these figures will be increased but slightly since the non-enforcement of cast-iron gullies. Since building by-laws were first adopted by the Corporation in 1864, there have been 27,280 houses certified as fit for human habitation, and, in addition, during the last four years, 1,052 houses have been erected and not certified, making a total of 28,332. Although, generally, the class of buildings has much improved during the past year, it has been found necessary in four cases to take proceedings, all of which were successful, the penalties imposed by the magistrates amounting to 20*l*. 15s. 6d., and in addition costs in two of the cases.

PUBLIC CONVENIENCES, HYDE PARK CORNER.—These conveniences have been erected by the Vestry of the Parish of St. George, Hanover-square, in Hyde Park at Hyde Park Corner, opposite St. George's Hospital. Provision is made for separate conveniences for men and women. The men's department is underground, and is built of brickwork faced inside with white glazed bricks. It is surrounded above the ground level by a parapet wall faced with Bath stone in coursed ashlar, finished with a moulded cornice of brown Portland stone. It has two entrances, one from Knightsbridge and one from the park; each staircase is 5 ft. in width and provided with brass hand-rails, and fitted with Bostwick's patent collapsible iron trellis gates. The entrance from the park is lined with "ceralite" or glass-faced bricks. The following accommodation is provided, viz.:—Twelve water-closets, thirty-two urinals, one large lavatory with six wash-basins, and an attendant's room situated in the centre of the building. The water-closets are of the pedestal pattern, fitted with mahogany seats and three-gallon waste-preventing cisterns. The urinals are semi-circular fire-clay backs in enamel, with polished St. Anne's marble divisions. The lavatory is lined inside with "ceralite," and is provided with six tip-up basins and receivers. The women's department is built entirely above ground. It is a structure of Grecian design, and is built of brickwork, faced on the outside with Bath stone in coursed ashlar; the columns, pilasters, cornices, and other dressings being of brown Portland stone. The roof is covered with lead, and has a central copper-covered dome forming an octagonal lantern inside, having sashes glazed with ornamental lead lights. The whole of the woodwork (with the exception of that in the entrance hall and waiting-room, which is polished American walnut) is selected pitch pine, stained and varnished. The building consists of a central hall, or waiting-room, with projecting wings, and contains the following accommodation, viz.:—twelve water-closets, a lavatory with four wash-basins, and an attendant's room; the fittings in this department are similar in all respects to those in the men's department. The water-closets and lavatory are arranged in corridors on the north, south, and east sides of the waiting-room from which each corridor has a separate entrance. The corridors are warmed by hot water radiators supplied from the boiler in the basement, which also supplies hot water to the lavatory basins. The entrance, which has a covered portico with fluted Grecian columns, is in the park, but has an approach from Knightsbridge. A private entrance and lobby is also provided in the park at the north-east angle of the building, to obviate the necessity of the officer entering the main building to collect the money. The floors in each department are laid with "terrazza," and with borders, &c., in Roman mosaic. Both departments are fitted throughout with the electric light. The doors of all the water-closets are fitted with Maskelyne's patent automatic "penny in the slot" locks. The sanitary work has been carried out by Messrs. Doulton & Co.; the electrical installation by Messrs. Ridout & Co., the current being supplied by the Westminster Electric Supply Corporation. The whole of the works have been constructed by Messrs. Patman & Fotheringham, at a contract price of 6,473*l*., from plans and specifications prepared by and under the supervision of Mr. George Livingstone, C.E., Surveyor to the Vestry, and his chief assistant, Mr. C. S. Milner.

HOSPITAL, MONKLANDS, GLASGOW.—On the 11th inst. the trustees of the late Provost Alexander, Coatbridge, applied at the Dean of Guild Court for lining for the erection of an hospital to be called the Alexander Hospital, in Blair-street, for which the deceased left 30,000*l*. The plans, which were passed, have been prepared by Mr. A. M'Gregor Mitchell, architect and Burgh Engineer, Coatbridge, and show a set of buildings in the Old Scotch Baronial style. The cost will be about 8,500*l*., and there will be thirteen beds for patients meeting with accidents in the districts of Old and New Monkland and Shotts. The buildings will cover 1½ acres of ground near Gartsherrie and Drumpellier Station, N.B.R., and will include nurses', doctor's, convalescent, &c., rooms.—*Glasgow Herald.*

RECREATION HALL, SCHOOL FOR THE BLIND, NEWCASTLE.—On the 12th inst. the new recreation hall was opened at the Royal Victoria School for the Blind, Benwell Dene, Newcastle. The architect for the erection was Mr. W. L. Newcombe, and the contractor was Mr. Pringle, of Gateshead.

THE PALACE AT DARMSTADT.—The Grand Duke of Hesse has appointed Messrs. Baillie Scott & Seton Morris, of London and Douglas (Isle of Man), as his architects for the decoration and remodelling of certain rooms in the Palace at Darmstadt.

ALTERATIONS, &C., WESLEYAN CHURCH, SPRINGBOURNE, HANTS.—This church, which has been enlarged and renovated, was recently reopened. The alterations carried out comprise the erection of a porch and lobbies in the front of the building, the placing of a gallery to accommodate some eighty or ninety persons in the western end of the church, re-seating the whole of the ground floor with pitch-pine seats, improving the choir accommodation, decorating the walls, rearranging the lighting, and other minor details. The contract was entrusted to Messrs. J. McWilliam & Son, of Bournemouth, and Mr. W. A. Hillier has been in charge of the work the architect being Mr. G. J. Lawson, of the firm of Messrs. Lawson & Donkin.

SCHOOL, FIFE.—The new school erected by the Wemyss School Board at Coaltown of Wemyss was opened on the 8th inst. The school is built to accommodate over 400 children. Mr. Alex. Toddi the architect, Mr. Thomas Brown builder, Mr. Robert Suttie joiner, Mr. D. Johnston slater and plasterer, Mr. William Nicol plumber, Mr. R. B. Forrester painter, Mr. M'Culloch railings and other iron work, sanitary fittings, Messrs. Adams & Co., Glasgow.

REPAIR OF CHURCH SPIRE, SWAFFHAM.—The spire of this parish church was last year examined by Messrs. Milne & Hall, architects, London, and found by them to be unsafe. Plans for the repair of the spire have been prepared by the same architects and approved by the necessary parties, and the work has been intrusted to Mr. George Jeffries, builder, of Swaffham.

BUILDING TRADES, STAFFORDSHIRE.—The building trade for the season of the year is good. This is principally on account of the large number of artisans' houses which are being erected all over the district. Through the severe weather of the past week all outdoor operations have been stopped, consequently there have been large numbers of all classes of operatives temporarily thrown out of work, and now that the severe weather has gone there are less than 3 per cent. of bricklayers out of work, and joiners are practically all employed. The plumbers and painters are slack, and there are a large number of labourers unemployed.—*Staffordshire Sentinel.*

NEW UNION OFFICES, DARLINGTON.—The Darlington Guardians held their first Board meeting in their new quarters on the 1st inst. The building is situated in Mill-street, and measures about 83 ft. by 50 ft. north-east of the Edward Pease Public Library. The building was designed by Mr. G. G. Hoskins. The materials employed are grey bricks and buff terra cotta. A feature in the design is a turret occupying the south-west angle, the lower portion of which forms a bay window in the Board room, while the upper part serves the special purpose of a ventilating chamber. The principal façade faces the south, and placed centrally here is the main entrance. On the west façade is the entrance for the relieving officers, while that for applicants for relief is from the back road on the north, and opens upon a waiting-room. From the main entrance the vestibule leads into the hall, both of which are floored with marble mosaic pavement. To the left is the Board-room, which, by means of a partition, can be converted into two committee rooms. To the rear of this is the waiting-room, and on the west of the latter are the separate offices of the two relieving officers. On the right of the entrance hall is the assistant's clerk's office, and adjoining this is the private office of the Clerk to the Guardians. North of these are a committee-room, strong-room, and lavatory accommodation. The several contractors for the various works have been:—For excavators', bricklayers', masons', terra-cotta, and plasterers' work, Messrs. Geo. Marshall & Son; carpenters' and joiners' work, Messrs. Thos. Stairmand & Son; slaters' work, Mr. J. Wandless; plumbers', glaziers', and gasfitters' work, Mr. E. Smith; painters' work, Messrs. W. H. & W. Hoskins; and heating arrangements, Mr. G. Denham, all of Darlington.

SAVINGS BANK, GATESHEAD.—The branch establishment which has been erected by the Committee of Management of the Newcastle Savings Bank, at Gateshead, was opened recently by the Mayor of Gateshead. The new premises are situated at the corner of West-street and Bensham-road. The style adopted is English Renaissance. The building has a massive Peterhead granite plinth and doorway. Above the plinth and up to the first floor level the facing is of Kenton stone, varied with red stone from Dumfries. Above the first floor level, the facing is of Normandy red brick, relieved with stone bands and dressings. The roof is covered with green slates, and the dome at the angle is of copper. The banking-room, lighted on three sides, measures 37 ft. 6 in. by 26 ft. 6 in., and is entered at the angle through an inner porch of oak, with lead glazing introduced. The walls and ceiling are finished in adamant, the ceiling being divided into panels with

moulded cornice. There is a panelled oak dado about 5 ft. high, and the flooring in front of the counter is of mosaic. The Board-room is on the first floor, and above are rooms for the caretaker. There are cellars in the basement. The floors of the private entrance and lavatories are of coloured tiles, and the walls of the latter are lined with glazed brick. Messrs. Haswell & Waugh, of Gateshead, were the contractors, and Mr. G. B. Burnett has acted as clerk of works. The slating has been executed by Mr. J. Hewitson, Newcastle; the plumbing by Mr. Corking, Gateshead; the plastering by Mr. Rule, Gateshead; and the painting and glazing by Mr. Moreton, Gateshead. The granite, marble work, tiles, stoves, and gasfittings have been supplied by Messrs. Emley & Sons, the counter and other furnishings by Messrs. Sopwith & Co., and the leadglazing by the Gateshead Stained Glass Co. The contract for the whole of the work was 3,615*l.*, and it has been carried out under the supervision of the architect, Mr. Stephen Piper, Newcastle.

TECHNICAL SCHOOL, PAISLEY.—This school is expected to cost about 20,000*l.* The main fronts are to be built of stone from Cullalo Quarry, Fifeshire, and the corridors, cloak-rooms, lavatories, vestibules, &c., laid with terrazzo. The architect is Mr. T. Graham Abercrombie, Paisley; the measurer, Mr. James B. Lamb, Paisley; and the clerk of works, Mr. James Murray, Paisley. The following are the contractors:—Messrs. John Bryce & Co., Paisley, mason work; Messrs. J. & W. McInnes, Paisley, joiner work; Messrs. Hunter & Goudie, Paisley, plumber work; Messrs. Jas. Jeffrey & Co., Paisley, slater work; Mr. D. T. Hutchison, Paisley, plaster work; Messrs. Galbraith & Winton, Glasgow, tiler work; Messrs. P. & W. MacLellan, Limited, Glasgow, iron work; Mr. John McKenzie, Glasgow, cement paving work; Mr. Wm. Key, Glasgow, heating and ventilating.

TOWN HALL, EAST COWES.—This building, which is situated in York-avenue, was opened as the Town Hall of East Cowes recently. The front of the building outside is 42 ft., the length being 102 ft. 6 in., and it is constructed of white brick with cement facings and mouldings. The entrance is paved with mosaic work, and on each side of the vestibule are cloak-rooms. Above is a room intended for the use of the District Council, adjoining being a smaller apartment for the accommodation of the Clerk. The hall itself contains a gallery over the entrance door, and at the opposite end a roomy stage, and the ceiling is panelled. With a length of 70 ft. and a breadth of 35 ft., there is room for an audience numbering about 500, exclusive of the platform. Behind the stage are dressing-rooms and a green-room, below being a kitchen. The hall was designed by Mr. James Newman, of Sandown, and the building work has been carried out by Messrs. W. H. Brading & Son, of East Cowes.

TECHNICAL SCHOOLS, SWINDON. — Lord Herschell recently opened the new technical schools at Swindon. The building, which is built of local bricks, is 174 ft. in length and three floors in height, and consists of a centre block, one room deep, with a wide corridor along the back leading to the projecting wings at each end. Accommodation has been provided for 600 students, and the structure is designed in such a way as to admit of enlargement by the extension of the two end wings; these can be carried back to form the two sides of a square with another connecting building at the back, the whole enclosing an inner quadrangle. The whole of the upper floor is devoted to art, and on the basement floor the various science rooms and laboratories are placed, while the women's department is located at the south end of the ground floor and the large lecture theatre at the north end. The building is heated throughout by hot-water pipes from a boiler in the sub-basement. Large extraction trunks are carried from each room to two large ventilating shafts, each 72 ft. in height, fixed one at the north end and one at the south end. Separate staircases are provided for the two sexes, with cloak-room accommodation on each floor. The whole of the work has been carried out by the contractors, Messrs. J. Long & Sons, of Bath, under the supervision of Mr. J. Elsden as clerk of the works. The architect was Mr. Silcock.

PUBLIC HALL, NEWPORT, ISLE OF WIGHT.—The new public hall in the High-street, Newport, the Medina Hall, has just been opened. The façade of the building is executed throughout in red brick. The front entrance, which is paved with tiles, leads to the main hall, which has a floor space of 60 ft. by 30 ft., the height to the ceiling being 22 ft., and the floor being specially constructed for dancing. At the north end of the hall is a gallery, 30 ft. by 12 ft., this, as well as the staircase leading thereto, being of fireproof construction. At the south end is a raised sloping stage, 30 ft. by 20 ft. The hall will seat about 600 people, and it can be quickly cleared. At the back of the stage are ladies' and gentlemen's retiring rooms, with lavatory accommodation to each, and there is also a kitchen. The heating chamber is in the basement, together with a second kitchen. On either side of the main entrance is office and cloak-room accommodation. The building has been carried out by Messrs. Barton Bros., the heating arrangements by Messrs. Wood & Tame, whilst the ventilators were supplied by the Grahtryx Company. The whole of the building was executed from the designs and nnder the supervision of Mr. E. A. Swane, C.E., of Messrs. Swane & Clark, architects.

WORKMEN'S DWELLINGS SCHEME, ABERDEEN.—The Aberdeen Town Council has resolved to purchase, at the price of 2,700*l.*, a triangular piece of ground 2¼ acres in extent, with frontages to three streets, near the City Hospital, and to erect eight tenement houses fronting Urquhart-road, at a cost of 750*l.* each. Each tenement will be three floors in height, with accommodation for six tenants. The plans are by Mr. John Rust, junior, City Architect.

NEW OFFICES FOR PARISH COUNCIL, ABERDEEN.—The Aberdeen Parish Council has purchased a site in Union-terrace, and will erect thereon new offices according to plans by Messrs. Matthews & Mackenzie, architects, Aberdeen.

EMPIRE PALACE THEATRE, ABERDEEN.—To replace the "People's Palace," destroyed by fire, tenders, amounting in all to rather over 10,000*l.*, have been accepted. Mr. John Rust, junior, Aberdeen, is the archifect.

A MODEL LODGING-HOUSE, MANCHESTER.—The Manchester City Surveyor (Mr. T. de Courcy Meade) has reported to the Sanitary Committee that in accordance with instructions he had prepared alternative sketch plans showing how the building sites now in the possession of the Committee can be used for tenement dwellings and for cottages for working people. The total number of persons to be housed is 2,584. With regard to the Oldham-road area, under the scheme recommended for adoption by the Committee, the buildings would be four stories in height, and consist of thirteen shops and dwelling-houses. The first, second, and third stories would consist of five-roomed dwellings connected with the shops. The buildings on the remaining portion of the site would consist of two rows of two-story tenement buildings, fronting to a new twelve yards street, and one row of five-roomed cottage dwellings fronting to George Leigh-street, which is eighteen yards wide. The clear space between the buildings at the rear would vary from 58 ft. and 55 ft. in width. The four rows of dwellings would afford accommodation for 377 persons. The estimated cost of erecting the four rows of buildings is 17,901*l.*, equal to 36*l.* 15*s.* 3*d.* per person. The estimated cost of sewering and paving the new streets, exclusive of the cost of widening the existing streets, is 900*l.*, to which must be added the estimated value of the site, 7,981*l.*, or a total of 26,782*l.* In Chester-street, Hulme, it is proposed to erect four blocks of buildings on the site, with frontages to Chester-street, Marsland-street, and Hulme-street. The buildings would be two stories high, and each dwelling consist of two two-roomed and two three-roomed tenements. They would accommodate 300 persons. The estimated cost of the buildings is 11,873*l.*, equal to 38*l.* 16*s.* per person, and the estimated cost of new streets, exclusive of street improvements, is 350*l.* The estimated value of the site, which has an area of 4 554 yards, is 2,277*l.*, or a total of 14.500*l.* It was proposed to erect on the Pott-street area, Ancoats, two blocks of three-story tenements similar to those in Chester-street at a total estimated cost of 17,478*l.* Accommodation will be provided for 400 persons. The City Surveyor says that if Harrison-street, Oldham-street, site were utilised for a model lodging-house instead of for cottages and tenement dwellings, the site would then accommodate 363 persons. The Committee recommend these schemes for adoption, and ask the Council to authorise them to carry out the plans, subject to the sanction of the Local Government Board. The number of persons to be accommodated is estimated as follows:—Oldham-road area, 377; Chester-street area, 306; Pott-street area, 300; Harrison-street model lodging-house, 363; total, 1,346.

NEW PREMISES, WHITEFRIARS.—A large extension has just been made to the premises in Whitefriars, London, of the Argus Printing Company, from the drawings of Mr. Chas. Val. Hunter, C.C. The foundations were put in by Messrs. Greenwood, and the superstructure has been erected by Messrs. Patman & Fotheringham. The lower part of the building is in massive blocks of Portland stone, and the upper part in Ruabon terra cotta. The floors are all fireproofed on the Fawcett system.

CHURCH, HERNE BAY.—A new church, to accommodate 1,000 persons, is about to be built at Herne Bay. Mr. R. Philip Day, of London, is the architect.

SANITARY AND ENGINEERING NEWS.

PUBLIC WORKS, MANCHESTER.—In accordance with the standing orders of Parliament, Mr. George Hill, C.E., has deposited in the Private Bill Office an estimate of 40,000*l.* as the cost of the new waterworks proposed to be authorised under the powers contained in the Manchester Corporation Bill of the present session. This estimate includes the purchase of the necessary lands and provides for contingencies. The City Surveyor has also deposited an estimate of 550,000*l.* as the cost of constructing the effluent conduit and the street improvement as proposed by the same Bill. Of this sum 200,000*l.* will be expended upon the effluent conduit, and 350,000*l.* upon the proposed street improvement.—*Manchester Guardian.*

LOCAL SEWERS IN LONDON.—The Main Drainage Committee of the London County Council have, subject to a condition recommended by the Engineer, sanctioned the construction of local sewers, as follows:—Lee: 950 ft. of 9-in. pipe and concrete sewer in Church-lane, Charlton. Shoreditch: 220 ft. of 3-ft. 9-in. by 2-ft. 6-in. brick sewer in Clifton-street, 260 ft. of 12-in. pipe and concrete sewer in Dysart-street, and 920 ft. of 3-ft. 9-in. by 2-ft. 6-in. brick sewer in Curtain-road.

STAINED GLASS AND DECORATION.

WINDOW, HOLY TRINITY CHURCH, SYDENHAM.—The very large west window of Holy Trinity Church, Sydenham, has recently been filled with painted glass at a cost of nearly 1,000*l.* It commemorates a deceased parishioner. In the six long lights are two rows of pictures which illustrate, each in two panels in the upper tier, three incidents in the life of Job, and, in the lower tier, "Noah's Sacrifice," "The Sacrifice of Isaac," and "Jacob's Dream." In the tracery openings, at the apex, is the Holy Lamb; in the other pieces figures of St. Michael and St. Gabriel, and of the other four Evangelists. The surroundings are of canopy work of the style which prevailed with fourteenth century Gothic architecture, in which style the church was built some years ago. The work is from the atelier of Messrs. Lavers & Westlake, of Endell-street, and was designed by Mr. N. H. J. Westlake.

PROPOSED MEMORIAL WINDOW, HAWARDEN PARISH CHURCH.—The members of the Gladstone family, as a thanksgiving for the extended years of life granted to their parents, intend, it is stated, erecting a memorial stained-glass window in Hawarden parish church. A design, by Sir E. Burne-Jones, representing "The Nativity," with "The Visit of the Shepherds," and "The Adoration of the Magi," has been accepted by Mr. Gladstone's sons and daughters.

THE RESTORATION OF ST. PETER'S CHURCH, THANET.—On the 7th inst. the chancel of this church was reopened, after the completion of the decoration and restoration that has been carried out in commemoration of the sixty years' reign of Queen Victoria. The coved ceiling of the chancel is divided into five main bays by ribs, which retain their original colouring of alternate gold and chocolate bandings, and white and black fillets; a similar rib at the ridge, with rich pendant bosses at the intersections; the cornices at the top of the walls are also ancient, and have furnished the key-note of the decoration. The ceiling between has been covered with pitch-pine boarding, which has been slightly darkened and allowed to form the ground-work for the painted figures and the other ornamentation. The three central bays have on each side a large figure of an angel, holding a shield bearing the monogram of our Lord or St. Peter. These angels are the work of Miss Maud Seddon (the daughter of the architect), and are surmounted by labels inscribed "Hosannah." The easternmost bay, that over the sacrarium, has on each side three smaller angels with outstretched arms, with labels over, inscribed, "Hallelujah;" and the westernmost bay, that next the nave, has on each side six half-length figures of the Apostles, seated on thrones, with gilded and diapered backgrounds. All these, together with the full-sized cartoons for the mosaic work, are the work of Mr. Henry G. Murray. The rest of the ornamentation consists of stencilled borders on either side of the vertical ribs, with a triangle of floriated panels on either side of the ridge rib, and on one side above the cornice, the work of Mr. C. Stollé. The eastern wall of the chancel has been covered with mosaic (Rusts' glass mosaic), and has a large figure of St. Peter on one side of the east window, and on the other of St. Andrew, both under canopies; angels bearing scrolls with inscriptions fill up the spandrils above the window, and there is a similar treatment in the same material of the east wall of the nave on either side of and above the chancel arch. The whole of the work is from the designs of Mr. John P. Seddon, and has been executed by Messrs. Belham & Co., with the assistance of the several artists above named.

FOREIGN.

FRANCE.—There is some talk of having a competition for a new *Salle des Séances* for the Chamber of Deputies in the *Cour d'honneur* of the Palais Bourbon. The expense is estimated at about four million francs.——A limited competition between the following artists will shortly be opened by the Ville de Paris—MM. Carrière, Lerolle, Prouvé, Elliot, Raphael Collin, and Baschet—for the decoration of the ceiling of the library of the Municipal Council at the Hôtel de Ville.——The Luxembourg Museum, which has been much enlarged and rearranged, has now been thrown open to the public. The two new halls on the terrace have been filled, one with the works of foreigners, and the other with the collection left by the late M. Caillebotte, and a few other impressionist pictures. One of the halls at the end has been given up to engravings, and engravers are to be represented in succession, beginning by M. Bracquemond, whose works are already there.——The "Société des Artistes Graveurs au Burin" have just opened their

third annual exhibition in the rooms of the "Cercle de la Librarie," 117, Boulevard Saint-Germain. It will close on March 3.——The new silver coins designed by the engraver Roty, bear on the face the figure of a woman in profile, with a Phrygian cap on her head her right hand is scattering grain, which she takes from a bag held in her left. The reverse shows a lighted torch, round which is an olive branch, and the motto, "Liberté, Egalité, Fraternité."——M. Alfred Boucher, the sculptor, has just finished the bust of the engineer, Flachat, which is to be placed in the Boulevard Pereire, on a pedestal ornamented with industrial symbols from the designs of M. Gaston Trélat, architect.——M Osiris has just founded a prize bearing his name, of the value of 100,000 fr., to be given to the person who makes the most remarkable work for the 1900 exhibition.——M. Jacques Lequeux, architect, is now superintending the building of a large hospital for old people, which the Conseil Général are erecting on the heights of Bry-sur-Marne, in a fine park that has been generously given to the Department of the Seine by a private individual.——Madame Elisa Bloch is making a bust of Daguerre, the inventor of the Daguerreotype, for the town of Bry-sur-Marne; it is to be paid for by subscription.——M. Rouyon, Director of Fine Arts, is at last roused by the destruction of the ramparts of Antibes, and he has confided to M. Revoil, the architect, the task of trying to save such portions of the débris as may contain anything of value, during the process of taking down.——M. F. Genay, architect, of Nancy, has been elected President of the "Société des Architectes de l'Est de la France."——There is talk of transforming completely the Babazoun quarter at Algiers, which forms one of the most important suburbs of this town.——M. Haro *père*, the well-known art connoisseur, has just died. From a child he was familiar with the great painters of this century, particularly with Jaques and Eugène Delacroix. He had great experience in ancient and modern paintings, and his advice was always taken in the large artistic sales which have taken place in Paris during the last thirty-five years. He had made a fine collection of paintings, the sale of which, in 1892, was watched with intense interest amongst amateurs, and which realised the sum of upwards of 700,000 francs.——The death of M. Victor Guillemin, architect, of Paris, is also announced.

GERMANY.—It has long been intended to publish a monumental work on the new Houses of Parliament at Berlin; and we are now informed that the art publishers, "Cosmos," of Berlin, have taken the matter in hand. The monograph on this building is to be a large folio, profusely illustrated with photographs and etchings, and will appear in ten parts, at intervals during the course of the next three years. At the same time there will be a publication on craftsmen's work in the building. This publication will be in three parts, representing masonry, woodwork, and metal work.——The *Vossiche Zeitung*, in its New Year's number, has a special supplement in connexion with a new building it has lately erected as printing house and editorial offices. The publication contains a large number of interesting historical views of Berlin, and calls for some attention from those interested in the development of this city. It is only to be regretted that the illustrations, interesting in themselves, should not have been more carefully prepared, as far as the draftsmanship is concerned.——The post of City Engineer at Berlin has become vacant, and we understand that there are seventeen candidates for the new office, all of whom are from Berlin.——The popularity of the Royal Technical College at Munich seems to be on the increase, as no less than 1,750 students have availed themselves of the classes. A number of foreigners are also attending this college, but there are no Englishmen among them.——At Berlin the increase of the students at the Technical College promises to cause inconvenience, as the building is already overfilled, and there are now nearly 3,000 students attending the classes, as compared with about 2,000 five years back. In this case we find that there are three Englishmen on the lists. The largest number of foreigners is from Russia, which nationality sends 119 students.

AUSTRIA.—Professor A. Hauszmann, of Buda Pesth, has been decorated with the order "Literis at Artibus" in recognition of his services in the development of the architecture of Buda Pesth. It will be remembered that Professor Hauszmann was entrusted with the extension of the Royal Castle of Ofen on the death of Von Ybl.——According to the *Deutsche Bauzeitung*, there appears to be a rapid increase in the price of ground at Vienna, the data given by our contemporary being highly interesting.——A most influential committee of the members of the Municipality and some experts are considering extensive plans for the improvement of No. 1 District at Vienna, which is practically the principal business quarter inside the boulevards. Much of the central portion of the city requires rebuilding, and the opportunity will be taken of widening some of the leading thoroughfares.——The Municipality of Vienna has now finally decided to erect its own gasworks and lay down its own gas-mains throughout the city; and we understand that the present contractors, who hold the monopoly of supplying Vienna with gas, will have to retire in the course of a few years. There has been an acrimonious discussion as to the renewal of the present contracts, which has resulted in these extreme measures. Practically, the whole of the Vienna roads will have to be opened up for the new mains, and a commencement has been made for the first, second, and third sections in the city. Incandescent gas-light will be introduced extensively for all the main thoroughfares.

SWITZERLAND.—In the preliminary competition for the proposed *Jungfrau Bahn* the first premium of 5,000 francs has been awarded to Mr. Strube, an engineer practising at Interlaken, whilst the second premium was also given to a Swiss engineer. Sixteen premiums were given in all, but, though the competition was an international one, only one award falls to England, *i.e.*, the fourteenth, to Mr. J. Bernays, of London. A number of German engineers participated in the competition and were successful in obtaining various premiums. Forty-eight designs in all were sent in, and besides those that received premiums the promoters also bought three of the designs, paying a nominal price of 400 francs for each.——An important competition for a church at Zurich is now being arranged. The cost of the church is not to exceed 350,000 francs; the premiums amount to a total of only 5,000 francs. There will be a national committee of assessors, among whom is Mr. Bluntschli.

SCANDINAVIA.—Rapid progress is being made on the Exhibition Buildings at Stockholm, which will be situated on a most picturesque site on the Oestermalmsviken and Djurgardsbrunnsviken. The whole of the buildings are well designed, particularly the Industrial Hall, which is entirely of wood, and the large gallery for machinery. The particular feature of the exhibition will be the Fisheries Collection, and there will be the usual representation of an old town—this time, naturally, "Old Stockholm." The last exhibition at Stockholm, we believe, was held in 1866, the other more important exhibitions of the Northern Countries taking place at Copenhagen, in 1872 and 1888.

LAHORE CITY SANITATION.—The city of Lahore is as ancient as 300 years can make the more modern parts, while the "old" Lahore is supposed to have been devised somewhere in the times of the Vedas, by Lohr, one of the great ancient dignitaries of the Asoka family. Let this be as it may, what we are concerned with is the Lahore of to-day, and verily it is a dreadful incongruity of dirt and distress, coupled up to evidently abortive efforts at sanitation and drainage. The open bullock cart conveys away the town sweepings as it did in the days of Akbar, while close by may be seen the new-fashioned water-pipe stand, with its tiny streamlet of water issuing out to supply slowly but surely the patient crowd who surround it, and await their turn to approach the driblet. The gutters are open as they were 300 years ago, and the smell from them is killing in its strength and power. The city lends itself to very much better sanitary arrangements than those which exist, since it is a series of undulations which might easily be utilised for flushing purposes. —*Indian Engineering.*

MISCELLANEOUS.

BUST OF DR. ARNOLD, RUGBY.—The bust of Dr. Arnold, by Mr. Alfred Gilbert, R.A., which has been presented to Rugby School by the past and present members of the school and other friends, was unveiled recently by the Archbishop of Canterbury. The bust, which is of marble, is of heroic size, and is placed at the end of the new big school, at the head of the gallery of painted portraits of former head masters and distinguished Rugbeians. It now stands on a temporary pedestal, but this will shortly be replaced by a permanent one, made from the last of the three elm trees which stood in the school close at the time of Dr. Arnold's head mastership, after designs executed by Mr. T. M. Lindsay, art master to the school, and approved by the sculptor.

PRACTICAL TESTING COURSE AT THE SHEFFIELD TECHNICAL SCHOOL.—Considerable use is being made of the appliances at the Technical School, and a course is now commencing with the testing machines, the subject being "The Strength of Materials." A number of important points of interest and value to practical men will be dealt with by the demonstrator, Professor W. Ripper, M.Inst.C.E. The next ten demonstrations include tests of the strength of wrought iron, cast iron, the various types of steel, brass, copper, &c.; also the strength of pulley ropes, chains, and pipes. These must be of considerable interest to engineers and others engaged in constructive trades. A further series of tests to be carried out will be of value to architects, these including the strength of timber, stone, bricks, cement, &c. Instruction will also be given in the various types of measuring instruments and appliances now used in mechanical laboratories. A few years ago only a few of the largest works possessed laboratories for the testing of materials, but now such laboratories are becoming much more common, not only with the manufacturers of metals, but with the engineers by whom the material is used. Scientific methods are finding their way into all departments of manufacture, particularly in the special departments peculiar to Sheffield. That the young men of Sheffield are aware of this, and appreciate the value of the instruction given at the Technical School, is shown by the excellent attendance at the various classes.—*Sheffield Telegraph.*

CLOISTER ARCHES, GREYFRIARS CHURCH, ABERDEEN.—In the course of the demolition of the buildings at Marischal College to make way for the extension of the south wing, there has been revealed interesting ecclesiological remains in the shape of the arches of the cloister of the Greyfriars Convent. The arches are contained in the wall which runs eastward from Greyfriars Church, separating the Longacre houses from the quadrangle of Marischal College. At some time or other the arches had been filled up with masonry, so as to form a solid wall. Rev. Dr. Cooper has long noticed the existence of the old arches in the comparatively modern masonry, and he pointed them out to Mr. Marshall Mackenzie, the architect of the buildings, who gave instructions that the wall should be taken down carefully, so that the arches should be left standing for a short time in their original form before they are finally demolished. The Greyfriars convent was founded in the middle of the fifteenth century by the Observantist Order of Greyfriars. A church was built at the same time, but was replaced about 1518 by a new church, which is the building now existing. The arches are believed to be part of the cloister of the convent, and are thus a very interesting historical relic.—*Aberdeen Free Press.*

THE LATEST "REVOLUTION IN CYCLES."—Mr. Thomas Bennett, of "the Bennett Scorcher Steel Cycle Company," has been good enough to forward to us a circular of what he is pleased to term the "Eureka driving wheel for cycles, motor cars, and railway locomotives," which we find very difficult to take seriously. Mr. Bennett seems to have been learning roller skating, and to have been struck, amongst other things, with the speed with which his feet shot out in front when he lost his equilibrium, coming, as he naïvely remarks, "on to the back of his head with great force (the heavier the man the heavier he falls)." What more simple, therefore, thinks Mr. Bennett, than to fit the back wheel of a cycle with a series of skate wheels, and use this "tremendous velocity (the heavier the rider the greater the velocity)" to propel the cycle? A greater fallacy we cannot conceive. The inventor of the "Eureka" proposes sixteen small wheels grouped round the main driving wheel, which cause the rider to rise as each small wheel comes directly under him, and to sink as it passes that point. In other words, the driving wheel is practically a sixteen-sided polygon, which on a flat surface would cause the rider to rise and fall sixteen times per revolution—not a very pleasant sensation, we should think, at the best. The theory seems to be that having passed the point where the apex is directly under the rider, a forward motion would be imparted to the machine. Even were this so, it would only be in proportion to the energy the rider had just stored up when raising himself on to the apex. Where, then, is the gain in speed? If we have correctly understood the wood-cut and description, we should think the principle involved is about as sound as that of making a crank 12 in. long, and curving the end back again so as to fix the pedal only 6 in. from the centre, and then considering the power as applied at a 12-in. average, which idea was actually patented not so very long ago. If Mr. Bennett is serious in what he prints, we hope, for his own sake, he may have a friend with an elementary knowledge of mechanics who can spare ten minutes for his instruction.

THE OLD GRAMMAR SCHOOL, DUDLEY.—Monday in this week was the last day for the sending in of competitive plans for a new grammar school and master's house on a site in St. James's-road. In connexion with this we may mention that the original free grammar school was founded in 1562 by Thomas Wattewoode, of Stafford, clothier, and Mark Bysmore, of London, silk-throwster. Upon the decay of the old school house, the school, after a temporary sojourn in Wolverhampton-street, was removed to new premises built in King-street in 1840.

PROPOSED SCOTTISH BUILDING TRADES' FEDERATION.—A meeting was held in the Trades' Hall, Glasgow, on the 13th inst., to consider the question of a Scottish Building Trades' Federation. The chair was occupied by Mr. John Hardie, President of the Glasgow and Suburbs Building Trades. Mr. T. Anderson, secretary of the Glasgow Trades, explained the purpose of the meeting. The question of a Scottish Building Trades' Federation had been under the consideration of the various trades, and one and all were agreed that such a Federation would be a benefit to the building trade of Scotland. The Glasgow and Suburbs Building Trades' Federation, with the approval of the Aberdeen Building Trades' Federation, the Associated Carpenters and Joiners, and other affiliated trades in the local federations, were of opinion that the time had now arrived when it was their duty to take the initiative in bringing about a closer bond between the workers in the building trade. No working member of the building industry could fail to have been impressed with the strides federation had made of late years among the employing class. The composition of the conference was as follows:—Painters, 7; slaters, 1; labourers, 2; masons, 2; sawmillers, 1; bricklayers, 4; glaziers, 2; tilelayers, 1; carpenters and joiners, 16; plumbers, 2—total, 38. After some preliminary business, Mr. Munro, Amalgamated Joiners, Edinburgh, moved—"That we establish a Scottish Building Trades

Federation for the purpose of forming a closer bond of union between the workers of the building trades." Mr. P. Keenan seconded. Mr. Steven moved, as an amendment, "That we approve of the principle of a national federation." Mr. Henderson moved, "That we approve of the establishment of a Scottish National Building Trades' Federation," which was accepted by Mr. Steven. Mr. Riley, labourers, Glasgow, seconded the amendment. On a vote being taken, Mr. Henderson's amendment was adopted by twenty-one votes to sixteen. Mr. M'Lean, bricklayers, Glasgow, moved, "The object of this Federation shall be to maintain the right of combination of labour by trade unionism, by mutually supporting any of the societies within the Federation if individually attacked by employer or body of employers; to promote conciliation in trade disputes, and to advance and elevate the cause of labour generally." Mr. John Ure, tilemakers, seconded. Mr. Riley moved, in addition to the objects of the Federation, the words "organise the workers in connexion with the building trade." He was very sorry the word skilled labour had been introduced into the meeting. By twenty-six votes to thirteen, Mr. Riley's addition was adopted. The remainder of the business was taken up in discussing the constitution of the Federation.

THE "KLEINE" SYSTEM OF FIREPROOF FLOORING.—This is a patent invented and owned by a German Government architect, Herr J. F. Kleine, of Erbach on the Rhine. The essential point in the system is that the lower portion of the floor is formed of roughly-squared stones carried by the joint aid of a metal band on edge between them, and of cement; the top being finished with concrete. The metal bands (*bandeisen*) assist in carrying the courses of stone between the main iron beams on which the ends of the bands rest. A plan of the floor is shewn in fig. 1, and three forms of section in figs. 2, 3, 4. It will at once be seen that this is a far inferior fireproof floor to some with which we are familiar in England; but the author claims for it that as any stone can be used for it, with only rough squaring, it is far more economical than floors in which "expensive forms of terra-cotta are used." That may be; but the question is whether it would not be still more economical and even more efficacious (in a fireproof sense) without the stone, and with merely a thickness of concrete with the iron bands enclosed in the concrete. Certainly in England we

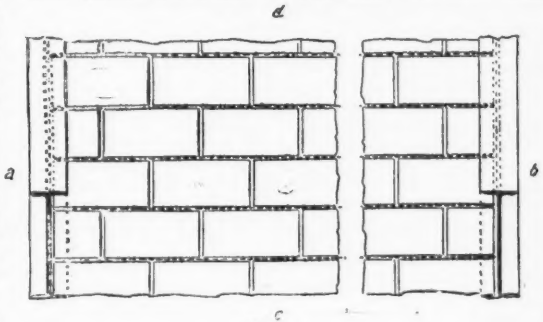


Fig. 1.

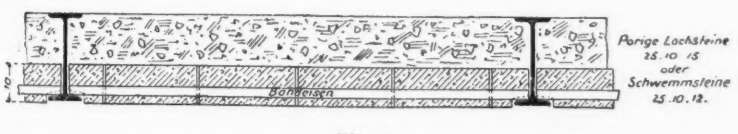


Fig. 2.

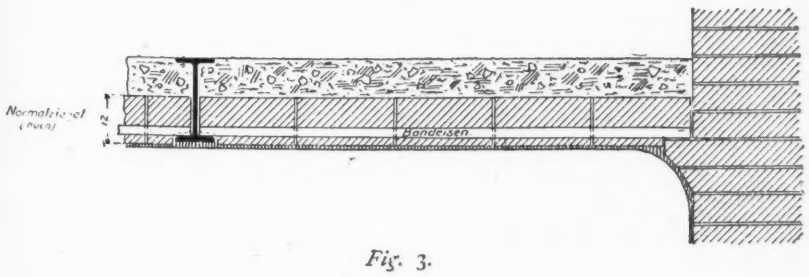


Fig. 3.

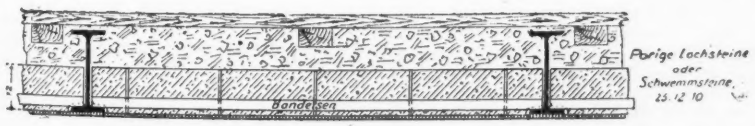


Fig. 4.

should not consider the section fig. 2, with the naked stone soffit, as deserving the name of a fireproof floor at all. We give the illustrations and description of it, however, for those whom it may interest; and we have ascertained that one of the Kleine floors obtained high results at a fire-testing competition in Germany, which may very well have been the case with some forms of this floor, though not, we think, the section fig. 2.

CITY COMMISSION OF SEWERS.—On Tuesday a meeting of the City Commission of Sewers was held at Guildhall, Mr. H. G. Smallman, the Chairman, presiding. At the instance of the Finance and Improvement Committee it was resolved to serve notices to acquire ground in Fetter-lane for the widening of the public way. An arrangement was adopted to settle a claim for the freehold interest in the ground required to widen the thoroughfare in front of No. 100, Fleet-street, for 8,800*l.* It was also decided to give 8,055*l.* for the freehold and leasehold interests in 101, Fleet-street, for the same purpose. The Committee were given power to confer with the Improvement Committee of the London County Council in regard to applications for contributions towards City improvements. The sitting later on was occupied in an unfinished discussion as to whether the Commission should oppose the Bills of the East London Water and New River Companies in Parliament.

MEDIÆVAL AND MODERN SCULPTURE.—Professor Baldwin Brown recently lectured in Moffat on mediæval and modern sculpture. Mediæval sculpture was partly Christian and partly antique, and about the thirteenth century they found it was largely used in connexion with architecture. In the French Gothic school it was found to be employed in the portico of churches, where, although it had not the technical correctness of the Greek and Italian sculptors, it was carried out in a manner truthful, simple, and fresh, and always in connexion with the decoration of the building. The Early English work of the same period had similar attributes. The Italian workers in sculpture had benefited by their training in beauty and effect. Their reliefs in bronze of religious subjects were of a strongly pictorial character, showing a very special turn in the direction of painting. They crowded in many figures, and the result was florid and theatrical, without concentration. During the last century there had been a revival of the Classic style. Now, however, the feeling was becoming more Italian, and Greek was less looked upon. The influence of painting was now strong on sculpture, just as it was in the old days in Italy. Modern sculpture lacked the beauty and grandeur of Greek sculpture. The sculptor of to-day did not work so much for the type, and that was the reason that modern sculptors were less successful in the monumental style than in works of the domestic style.—*Glasgow Herald.*

NOTTINGHAM MASTER BUILDERS' ASSOCIATION DINNER.—Under the presidency of Mr. Enoch Hind, the members of the Nottingham Master Builders' Association, together with a number of guests, held their annual dinner at the Albert Hotel, Derby-road, on the 11th inst. The loyal toast having been honoured, Mr. H. Vickers submitted the "Mayor and Corporation of Nottingham," Ald. Bennett and Mr. J. Wright, whose names were coupled with the toast, responding. The Vice-President (Mr. Wright) next proposed "Success to the Master Builders' Association." They might congratulate themselves, he said, that up to then the Association, which had only been started about five years, had been a success. The past year had been one in which they had several little and some rather serious troubles. There were at first three or four little difficulties with the labourers, and while trade was good they were sure to have some little annoyance, but they had a right to claim that the Association had smoothed over the difficulties without any very serious trouble. The masons' strike was a somewhat serious matter, and to those who took an interest in it it must be a matter of most sincere regret that a strike should have occurred, which lasted four or five weeks, over so small a difficulty—simply a question of apprenticeship. Then they had a demand for an advance of wages, and alteration of rules from the bricklayers. By negotations, and after they had had many meetings, that advance of wages was conceded, and certain alterations were made in the rules. The bricklayers conceded the members of the Association some small points, and the matter was amicably arranged. In connexion with this they had done something on which several of their prominent members had set their minds very strongly for a long time, namely, in the direction of securing a uniformity in working hours throughout the trade. The plumbers' strike assumed a very serious aspect indeed, and although the Association was not directly connected with it, the other branches of the workers decided to combine with the plumbers, and he was sorry to say that they combined with them outside their working rules with the builders. This was rather a new feature, and one which might crop up again in the future, and the members of the Association would be well advised to remember that, and be prepared for it. As they perhaps all knew, they had had a notice from the joiners for an advance of wages and certain alterations in the working hours. He considered that the joiners had made a very serious mistake. They had been offered the money that they asked for, if they would give a little concession on the winter working hours, and they had absolutely refused to accept it. He was afraid that the difficulties they had had were but an indication of what was to follow, for there was no doubt that while trade was good they would have plenty of opportunity for exercising unity, and in order to cope more effectually with the difficulties which might probably arise they had reconstructed the Association. They had now a committee appointed to deal with each branch of the trade, and every member of the Association was on one or more of the committees.—Mr. Woodsend, in replying, said when they became a strong Association and were thoroughly combined, they might, he trusted, be able to see their way to start a benevolent fund, as had been done by the National Association and other similar organisations. Mr. Hodson also responded. Other toasts followed.

TEMPERANCE PERMANENT BUILDING SOCIETY.—The report for the year ended December 31, 1896, states that the advances during the year amounted to 240,349*l.*, an increase of 59,134*l.* over the previous year. Of 3,328 properties mortgaged to the society, no fewer than 3,065 are for sums not exceeding 500*l.*, or upwards of twelve hundred more small properties than are held by any other building society in the United Kingdom. It is therefore claimed that the society is carrying out, to a greater extent than any similar institution, the object for which building societies were established, namely, to assist the industrious and provident classes to become owners of house property.

THE EAST END DWELLINGS COMPANY.—The report of this Company, to be submitted to the fourteenth ordinary general meeting on the 22nd, states that no building operations were carried on by the Company during the year, but an important leasehold site, with frontages to Columbia-road, Hassard-street, and Ravenscroft-street, in the parish of Bethnal Green, was acquired. Plans have been approved for building on this site, which show 412 lettable rooms, divided into tenements of one, two, three, and four rooms each, besides two shops and twenty-two workshops, some with living rooms attached. The work of excavating for the foundations has already been commenced, and it is hoped that the new buildings will be ready for occupation before the close of the present year. As was anticipated in the last report, the remaining tenements at Winton Houses were quickly taken up, and at the close of the year, with the exception of one tenement at Gordon Dwellings and another at Meadows Dwellings, the whole of the Company's properties were fully let.

GRAY'S-INN CHAPEL.—Mr. C. Herbert Shoppee writes:—"I regret to have to call your attention to an error in the lettering of the plate in which you put my father's name, Mr. C. J. Shoppee, instead of my own name, although the latter appears correctly in the letterpress." The copy for the letterpress was not received when the plate was printed.

CAPITAL AND LABOUR.

LABOUR IN THE BUILDING TRADES.—At the end of January the building trades were scarcely so busy as in the previous month, owing to the weather. Employment, however, was considerably better than a year ago. The percentage of unemployed in unions making returns for January was 2·4, compared with 3·7 in January, 1896. Six disputes took place, involving 309 workpeople.—*Labour Gazette.*

LABOURERS' WAGES, YORK.—A meeting of the York Master Builders' Association was held recently to consider the applications from the Operative Bricklayers' Society and the Amalgamated Builders' Labourers' Union for an advance of one penny and one halfpenny per hour respectively, from May 1, 1897. The secretary reported that the Bricklayers' Society had withdrawn their notice, and it was unanimously decided that an intimation be sent to the Labourers' Society that their application could not be granted, as the state of the building trade in the city does not warrant any advance.

LEGAL.

AN ARCHITECT'S CLAIM:

BEESLEY V. DANGERFIELD.

THIS case was before Mr. Ridley, Q.C., the Official Referee, on Monday and Tuesday last week. The plaintiff is an architect and surveyor of Westminster, and the defendants are printers, lithographers, &c., of St. Albans. The plaintiff was employed to prepare drawings and quantities for the erection at St. Albans of premises for the defendants. This work was carried out and tenders were received, the lowest being over 5,000*l.*, afterwards reduced to nearly 4,000*l.* The defendants dismissed the plaintiff, alleging that they had always stated that they could not spend more than 3,000*l.* This the plaintiff denied, and no mention of such a sum appeared in the correspondence. The defendants proceeded to erect a building themselves, and on plaintiff finding this out and being unable to obtain any payment at all for his services the action was commenced.

Mr. C. H. Brodie, architect, was called to show the resemblance of the building erected to the plaintiff's design, and Mr. Gilbee Scott, architect, for rebuttal. There was a counterclaim by the defendants for loss of time, &c., caused by the alleged neglect of instructions by the plaintiff.

The Official Referee decided that the defendants were wrong in dismissing the architect and not allowing him to cut down the building and erect it as they themselves, in fact, had done. He must be paid for his services, and he, therefore, gave judgment for the plaintiff with costs, on the claim and counterclaim, which, he held, could not be sustained. He fixed the remuneration to which the plaintiff was entitled at 100*l.*, to include a small sum paid into court.

It transpired that the plaintiff, who said he was a member of the Society of Architects, had undertaken to erect the building for a commission of 3 per cent. on the cost, exclusive of the quantities, which were agreed at 2 per cent.

Mr. Saunt appeared for the plaintiff, and Mr. Harrison for the defendants.

THE LIGHT AND AIR DISPUTE BETWEEN BANKS.

THE case of the London & Midland Bank *v.* the National Provincial Bank, Limited, was mentioned to Mr. Justice North in the Chancery Division on the 13th inst., it being an action brought by the plaintiffs to restrain the defendants by injunction from continuing the building of their bank in Park-row, Leeds, so as to cause an alleged interference with the light and air of the plaintiffs' bank which is opposite that of the defendants.

Mr. Seward Bryce, Q.C., for the defendants, said that he wished to have the trial expedited, and to have the case tried at the next Leeds Assizes. He also asked for permission to complete the building by putting on the roof, the defendants undertaking to pull down so much as was found by the Judge to interfere with the plaintiffs' light and air.

Mr. Swinfen Eady, Q.C., on behalf of the plaintiffs opposed this course, and submitted that he was entitled to an injunction restraining the defendants from increasing the height of their building.

In the result the defendants undertook till the trial not to build any higher, except for the purpose of putting on a temporary roof, the action to be set down at once.

ALLEGED INTERFERENCE WITH AN ARCHITECT BY BUILDERS.

MR. R. G. PARKER applied *ex parte* to Mr. Justice Kekewich, in the Chancery Division, on the 12th inst., for an injunction to restrain J. Allen & Sons, who are building a large building for Messrs. Maple & Co. in Fitzroy-square, from interfering with Mr. William Woodward, an architect, in the discharge of his duties under the contract and specification of works. The learned counsel stated that in the building certain concrete made in a particular way had to be used for fire-proof floors. When the architect went to the building a day or so before he found that improper materials were being used for the making of this concrete, and, in pursuance of his powers under the contract, he required it to be removed. At the same time he said that if the good part were taken out and the rubbish were rejected he would pass it. The foreman undertook that that should be done. On the 10th inst. the architect received notice that it was not being properly sifted, and he then told Allen & Sons that if it was not properly sifted he should remove it. The architect went up on the 11th inst. and met with forcible opposition, ladders being removed and a gang of men being brought up to oppose any proceedings he might take under the contract. The architect, therefore, had to capitulate and came to his lordship and asked him to restrain the defendants from interfering with him in the discharge of his duties, and also from using improper materials in the making of the concrete floors.

His Lordship said that he did not see his way to grant the application as to compelling specific performance of the agreement. An injunction to restrain the defendants from interfering with the architect in the discharge of his duties under the contract was quite another matter. He would grant the injunction as to that extending over that day week, the plaintiff to serve notice of motion on the defendants for that day.

PIRACY OF AN ARCHITECT'S DRAWINGS:

IN THE CHANCERY DIVISION.

THE case of Neale *v.* Harmer and others came before Mr. Justice Kekewich in the Chancery Division on the 12th inst., on a motion by the plaintiff, Mr. James Neale, F.R.I.B.A., and a Fellow of the Society of Antiquaries, for an *interim* injunction to restrain the defendants, Messrs. Harmer & Harley, and *Architecture*, Limited, the publishers and proprietors of a paper entitled *Architecture*, from printing, publishing, selling, delivering, or otherwise disposing of any copies of that magazine containing any drawings or plans copied from "The Abbey Church of St. Alban," a work published by the plaintiff, and duly registered as copyright.

Mr. Warrington, Q.C., and Mr. Pattisson appeared as counsel for the plaintiff, and Mr. W. H. Upjohn for the defendants.

It appeared from the statement of Mr. Warrington that the plaintiff was the author of a very elaborate work on the history and architecture of St. Alban's Abbey, containing about 200 measured drawings and plans of the details of the Abbey in its original state before the restoration, together with descriptive letterpress. The defendants had published an article on the Abbey, and copied the ground plan of the Abbey, and also reproduced, by some photographic process, three of the drawings taken from the plaintiff's book. The plaintiff did not complain about the insertion of the ground plan, because he had given the defendants leave to reproduce it. The defendants did not dispute that they had taken the drawings in question from the plaintiff's book, but they contended that they were entitled to do so. The defendants had prepared blocks of five or six more drawings from the plaintiff's work, intending to insert them in another number of the magazine.

The learned counsel read an affidavit by the plaintiff and correspondence which had passed between him and the editor of *Architecture*, from which it appeared that the plaintiff had declined to allow any of the drawings (with the exception of the ground plan) to be used.

Mr. Upjohn contended that it was impossible to decide on affidavit evidence what the agreement between the parties was. But apart from that, and even assuming that there was no agreement permitting the defendants to reproduce the plates, he should contend that there had been no piracy. The law laid down that a man was entitled to make a fair and reasonable use of the work of those who had gone before him.

His Lordship, in giving judgment, said that the editor of *Architecture*, being anxious to obtain drawings of the old as well as the new part of St. Albans Abbey, wished to do so cheaply, and applied to the plaintiff, the author of what was stated to be a standard work. He would assume for the moment that there was no licence given to the defendants to use the drawings. It was admitted that the three drawings in question were taken directly from the plaintiff's book, and these were the only three strictly architectural examples of the old abbey given by the defendants. The defendants had simply cribbed the plaintiff's industry and knowledge, and had not exercised any ingenuity of their own, except such as was displayed in the copying. That seemed to him entirely wrong. With reference to the question of licence, it was said that there was a conflict of evidence, and that he (his Lordship) ought not to try the case then. He considered that there was no conflict at all—at least, worth speaking about. The affidavits and correspondence read together seemed perfectly plain. The plaintiff was applied to to allow these drawings of his to be used, and he said, "You may use the ground plan, but nothing more." The defendants applied to him again, and he objected to his drawings being used unless he wrote the article himself. He offered, for a certain price, to write the article, and to illustrate it. The defendants said that he offered to allow them to take the illustrations at a certain price, but that he did not offer to write the article; but it was impossible to put that construction upon the correspondence. He thought, taking the whole of the circumstances into consideration, that the plaintiff was entitled to an injunction as asked, until trial or further order; but the injunction would not extend to the ground plan.

Order accordingly.

AYLESBURY BANKRUPTCY COURT.

RE SIAREY—EX PARTE THE OFFICIAL RECEIVER.

ON the 27th ult., at a special meeting of this Court—before his Honour, Sir A. G. Marten, Q.C.—a motion was made by the Official Receiver, acting as trustee of the estate of William Howard Siarey, of Aylesbury, builder, against John Sladen, of Amersham.

The Official Receiver was represented by Mr. A. Carrington, barrister, and Mr. Sladen by Mr. Arthur Powell, barrister (instructed by Messrs. Albin Hunt & Fourmy, solicitors, Chesham).

Several witnesses were in attendance to give evidence for Mr. Sladen, amongst whom were: Mr. H. Bushell, F.S.I.; Mr. Guest Luckett, architect, Aylesbury; Mr. George Darlington, builder, Amersham; Mr. H. T. Grimsdale, builder, Aylesbury.

The motion was for an order that Mr. Sladen should pay the sum of 117*l.* 18s.; alleged to be due from him to the estate of W. H. Siarey, being the balance for the erection of a villa at Amersham Common.

Mr. Sladen's case was that, under the agreement entered into between himself and Siarey, Mr. Guest Luckett, architect, of Aylesbury, and who was the architect employed, was to value and price any extras that might have been ordered over and above the original contract, which had been done, and after paying Mr. Darlington, who had been called in to finish the work, the accounts showed that Siarey had been overpaid. The agreement stated that Mr. Luckett's decision should be binding and final on all parties in case of any dispute.

Mr. Arthur Powell applied to stay the proceedings on the ground that the parties themselves had made Mr. Luckett sole arbitrator. He then objected to this Court assuming jurisdiction on legal grounds, quoting authorities in support. After long legal arguments, the Judge overruled the preliminary objections, and decided to hear the motion.

Mr. Carrington then opened the case for the Official Receiver, reading an affidavit of Mr. George Mallam and the shorthand notes taken on the private examination of Mr. Sladen and Mr. Luckett.

Mr. Herbert Quinton, architect, Oxford, was the first witness called for the Official Receiver. He stated that he had seen and examined the contract, specification, and plans for Mr. Sladen's villa. His (witness's) instructions were to price the quantities according to the schedule in the Architect's Compendium for 1895. He was to price the extras and omissions. He did so, and now produced his valuation. It amounted to 133*l.* 5s. 9d., in addition to which there was 28*l.* 14s. 10*r* extras not allowed for by Mr. Luckett. In cross-examination by Mr. A. Powell, witness admitted that he had departed in his valuation from the prices mentioned in the compendium, varying it in accordance with local prices. It was perfectly reasonable for Mr. Luckett to do the same. The witness admitted that he had not priced the additional extras claimed for by the Official Receiver in accordance with the compendium, neither had he measured them up, but had simply taken the items from the bankrupt's account book.

Mr. Carrington here intimated that in the face of the admissions on cross-examination he must abandon his claim for the increase over Mr. Luckett's valuation.

Mr. William Siarey, the bankrupt, was then called, and stated that the whole of the additional extras claimed for by the Official Receiver, had been carried out by him, and that he had not been either paid or allowed for the same by Mr. Luckett in his valuation. He, however, admitted that the amounts charged were not in accordance with the Architect's Compendium; that some had been allowed for by Mr. Luckett, others were specified for and formed part of the original contract, either being included in the specification or bill of quantities.

Mr. Carrington here intimated that in the face of these admissions he could not continue the case, and acting under the instructions of the Official Receiver, who only desired to do what was right in the matter in his official capacity, he would withdraw from the case.

His Honour then gave his judgment for Mr. Sladen, refusing the motion with costs.—*Chesham Examiner.*

ACTION BY A BUILDING MANAGER:

SOLICITORS AND THEIR SPECULATIVE BUILDING TRANSACTIONS.

MR. RIDLEY, Q.C., one of the Official Referees of the Chancery Division of the High Court of Justice, has had before him recently the case of Messer *v.* Saunders and others, in which the plaintiff, Mr. J. J. Messer, of Fernlea-road, Balham, seeks to recover from the defendants (Messrs. Saunders, Hawksford, & Bennett, of Coleman-street, E.C., and Mr. J. Grayhurst Hewat, formerly carrying on business as solicitors under the style of Saunders, Hawksford, Bennett, & Co.), a sum of 3,320*l.* 13s. 4d., alleged to be due to him, and including advances made by him to enable defendants to finance certain builders. Mr. Hewat pleaded non-liability under partnership deed, and the other defendants set up an open counter-claim to ascertain which they asked for an investigation of accounts. It was stated that in 1874 plaintiff was a bill clerk in the employment of a firm of City solicitors, whose business was then acquired by Messrs. Saunders, Hawksford, & Bennett, and they took over plaintiff's services with the business. Subsequently, Mr. Hewat, who had been articled to them, was admitted a member of the firm, which engaged largely in speculation in land and buildings. They either purchased freeholds or got long leases of land suitable for building, and entered into agreements with various builders to erect houses on the land, using their own money, or that of clients, or money advanced by their clerks to finance the builders. Plaintiff's first advance was in 1879. In 1885, the then surveyor for the firm's estate work having been dismissed, plaintiff was asked to undertake the management and superintendence of the various building estates, and in addition to the continuation

of his salary of 200*l.* a year, he was given a free residence and survey fees; he was to have the letting of the finished houses, the collection of the rents, and the execution of repairing jobs required from time to time, doing the latter as cheaply as possible, and charging such sums as would leave him a slight margin of profit. In 1890 a builder who had contracted with defendants for the erection of some houses in Pathfield-road, Streatham, failed to complete his work, and it was agreed that plaintiff should undertake the finishing of the houses as cheaply as he could; but this necessitated the purchase of a horse and cart, the hiring of stables, and a considerable increase of his ordinary plant and materials for repairing work on the firm's building estates. This went on until 1894, when the defendants found they were losing money, and plaintiff, becoming worried about the large balance due to him, was seized with a severe attack of brain fever, and incapacitated from business. After his recovery he failed to obtain a settlement of his account, and hence the action. General account, according to the particulars of claim, showed a balance of 658*l.* 6s. 9d.; and repairs account, 1,746*l.* 3s. (inclusive of 1,556*l.* 10s., the cost of finishing the houses in Pathfield-road); the other items comprising loans to builders and interest on the total debt sued for from June 24, 1894, to the date of the action.

Mr. Houghton, on behalf of Messrs. Saunders, Hawksford, & Bennett, said their case was that plaintiff was a trusted and confident servant of the firm, and on his representations as to the manner in which they had been dealt with, the previous surveyor was discharged, an alteration of plaintiff's duties was arranged; he was to do no legal work in the office but, for the protection of the firm, to superintend and manage their estate building work. Plaintiff suggested that if money were found him he would buy materials and engage labour so as to avoid contractors' profits, and, practically, finish the house building at cost price, which was agreed to, and he was also entrusted with the duty of certifying the builders' accounts. But when the latter "broke down," it was found that he had already certified for nearly the scheduled estimates of cost while the new buildings were nothing like completed. On complaint being made about this, plaintiff told the firm that everything would come out all right, that the houses were well worth all the advances, and that he would himself finish them, looking to the property for repayment. Plaintiff always encouraged the firm to go on, until Mr. Bennett took matters into his own hands, and after plaintiff became ill, investigations were made which revealed the state of things on which the counter-claim was based, viz.:—That plaintiff had received secret commissions for supplies of materials, used defendants' material for the purposes of his own business, and had been in partnership with certain builders. Altogether, counsel said, upwards of 30,000*l.* of the defendants' money had been handled by plaintiff, and the bulk of it had been lost.

Plaintiff was examined at considerable length as to his transactions with the defendant firm, and in cross-examination he denied any knowledge until March, 1894, that Mr. Hewat was not jointly interested with the other partners in the building undertakings, and when Mr. Hewat told him so he was startled and surprised. It was not a fact that the sums set out in his claim were substantially profit he had made on the moneys of the firm which had passed through his hands. He denied having received secret commissions.

Several witnesses on both sides were examined. A settlement was arrived at subsequently, and Mr. Ridley accordingly gave judgment against the defendant Hewat for 2,000*l.* and for 200*l.* as against the defendant firm, with costs.

A CLARE MARKET LIGHT AND AIR CASE.

THE case of Dye *v.* Patman and others came before Mr. Justice North, in the Chancery Division, on the 5th inst., on the application of the defendants for an adjournment of the case under the following circumstances. Mr. Dodd, who appeared as Counsel for the defendants, said that the plaintiff owned a public-house situated at the corner of Hollies-street, Clare Market, the action being one for alleged interference with his light and air. His house, however, together with a number of other houses, had been scheduled as being in an insanitary area, under the Housing of the Working Classes Act, 1890. After representation had been made to the Medical Officer of Health, the London County Council complied with that Act, and gave the plaintiff notice of this representation, and eventually, under instructions from the Local Government Board, a person was authorised to make a report, to be laid before Parliament. If the plaintiff's house was in such an unsanitary condition that it was not fit for habitation, and could not reasonably be made so, then the London County Council purchase it compulsorily, and they pay to the owner of the land compensation for the value of the land and the materials thereon. That report was expected to be made to Parliament shortly. Under those circumstances, if the case was set down and heard, it would be an injustice for the plaintiff to obtain a mandatory injunction to compel the defendants to pull down their building, which was a new building, and which had been erected with the approval of the London County Council. He (the learned Counsel) therefore wanted an adjournment of the trial, because the owner of the premises was not in England but in South Africa, and he was an important witness connected with the case.

His Lordship: How is that?

Mr. Dodd replied that he ought not to have suggested that he was a material witness, but he was greatly interested in the proceedings. His (the learned counsel's) substantial ground for asking for the adjournment was that if the plaintiff were to succeed in his action as it now stood he would have a mandatory injunction compelling the defendant to pull down a building which had already cost a large sum of money, and which had been built with the approval of the London County Council.

Mr. McSwinney, for the plaintiff, submitted that the application was merely an attempt to postpone the evil day when the mandatory injunction would be granted. If the area in question was condemned, the plaintiff would be purchased out, and the light would be a valuable easement which would have to be taken into consideration when the purchase took place.

His Lordship: Yes, and purchased out by the people who sanctioned the defendant's structure.

After some further discussion, his lordship said that he thought that the case ought to be postponed, not because of the owner of the defendant's premises being away—because he could have had a shorthand note taken of the proceedings, and read it over afterwards—but it was quite possible that there might be a report which would prevent him (his lordship) ordering the building to be pulled down. If that report had not been made at the time of the trial, and if he went on to hear the case, and decided it in the plaintiff's favour, he certainly should suspend any proceedings under the order to pull down until he knew what the result of that report was, and it might turn out that the whole trial had been useless. The plaintiff could not, therefore, get any benefit from a decision, even in his favour. What then was the reason for wasting the time on a trial in the meantime? It was not unreasonable on public grounds to postpone the trial, and he should, therefore, adjourn the case. He thought that the best order would be that the case should stand over until further order, with liberty to either side to apply to restore. The costs of the motion to be costs in the action.

Order accordingly.

A BUILDER AND HIS PLANS.

THE case of Smith *v.* the Chorley District Council came before Mr. Justice Kennedy, in the Queen's Bench Division, on the 8th inst., for judgment. The action was brought by the plaintiff, a builder at Chorley, for a mandamus to compel the Council to pass the plans of a house in Back-lane, Chorley, which, however, it declined to do, on the ground that if the house was built it would make the street 24 ft. wide instead of 36 ft. 6 in., which was the minimum width allowed by the by-laws. The plaintiff's contention was that Back-lane was not a new street. The case was tried before his Lordship and a special jury at the Manchester Autumn Assizes, when the jury found that Back-lane was not a new street. The short point which his lordship had to decide was whether a writ of mandamus was the proper remedy.

His Lordship said that after having carefully considered the arguments of counsel, and the numerous authorities on the point, he came to the conclusion that the defendants' contention was well founded, and that the action for a mandamus could not be maintained.

Judgment accordingly for the defendants with costs.

A FEARDON BUILDING DISPUTE.

THE case of Harrison *v.* the Feardon Urban District Council came before the Court of Appeal, composed of the Master of the Rolls and Lords Justices Lopes and Chitty, on the 10th inst., it being the appeal of the defendants from the judgment of Mr. Justice Kennedy in an action tried by his lordship at the Leeds Assizes.

The plaintiff in the action, Mr. William Harrison, claimed an injunction to restrain the District Council from pulling down or otherwise interfering by themselves, their servants, or workmen, with a coach-house and stable which he was causing to be erected on a plot of land on the western side of Cemetery-road, Feardon, close to a number of cottages owned by him. The District Council in February or March, 1896, proceeded to pull down the buildings, contending that they were an infringement of their by-laws in so far as by their erection plaintiff was making a new street on the space in question, that the passage was not of sufficient width, and that if this building was suffered to stand the new street would only be 13 ft. 3 in. wide instead of 26 ft. 6 in. as required by one of their by-laws. There was no aperture or means of exit of any kind from the building, as erected, into the space or passage; the only access to the building, as constructed, was at its north end, and furthest away from the space or passage. The question was whether the plaintiff had by this erection been beginning to lay out a new street. Mr. Justice Kennedy decided the case against the Council, granting Mr. Harrison an injunction, with the nominal damages of 40s. for the trespass. The defendants now appealed.

Mr. Lawson Walton, Q.C., and Mr. Scott-Fox appeared as counsel for the appellants, and Mr. Robert Wallace, Q.C., and Mr. W. R. Watson for the respondent.

Mr. Scott-Fox said that the question before the Court was one of construction of the by-laws, and although the issues were very complicated the question to be decided had narrowed itself to small limits. The plaintiff had built in Feardon certain property which for the sake of argument, though it was not named yet, might be called Carlton-terrace. It consisted of a row of nine houses, the fronts of which opened on to a narrow pathway, but the backs of which opened on to a road which gave the only access to carts. It was at the back of one of these houses on which the stable and coach house were built. He contended that the roadway was a new street and thereby came under the by-laws.

The court without calling upon counsel for the respondent dismissed the appeal with costs.

MEETINGS.

FRIDAY, FEBRUARY 19.

Architectural Association.—Mr. W. H. Bidlake on "The Architect and the Public." 7.30 p.m.

Incorporated Association of Municipal and County Engineers (Metropolitan District Meeting).—(1) Mr. W. Weaver on "London House Drainage." (2) Mr. R. W. Richards on "Hard Wood Pavements." 7.30 p.m.

SATURDAY, FEBRUARY 20.

Architectural Association.—Visit to the L.C.C. Working Class Dwellings, Boundary-street, Bethnal Green. 2.30 p.m.

Institution of Junior Engineers.—Visit to the Metropolitan Fire Brigade Headquarters, Southwark Bridge-road, S.E. 3 p.m.

MONDAY, FEBRUARY 22.

Surveyors' Institution.—(1) Adjourned discussion on Mr. J. Willis Bund's paper on "Allotments and Small Holdings." (2, time permitting) Mr. C. H. Hooper on "Fruit Growing as an Auxiliary to Agriculture." 8 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Lecture by Dr. A. Wynter Blyth. 8 p.m.

Society of Arts (Cantor Lectures).—Mr. C. F. Cross, F.C.S., on "The Industrial Uses of Cellulose." II. 8 p.m.

TUESDAY, FEBRUARY 23.

Institution of Civil Engineers.—Papers to be read: (1) "The Main Drainage of London," by Messrs. J. E. Worth and W. Santo Crimp; (2) "The Purification of the Thames," by Mr. W. J. Dibdin. 8 p.m.

Royal Victoria Hall, Waterloo-road, S.E.—Mr. J. W. Waghorn, D.Sc., on "X and other Rays of Light" (with experiments). 8.30 p.m.

Auctioneers' Institute.—Mr. J. Hepper on "The Law of Fixtures in Practice." 8 p.m.

Carlisle Architectural, Engineering, and Surveying Society.—Mr. A. W. Johnston on "Architectural Proportions."

WEDNESDAY, FEBRUARY 24.

Surveyors' Institution.—Annual Dinner, Victoria Hall, Hotel Cecil: Strand entrance, East Block.

Society of Arts.—Sir Henry Trueman Wood, M.A., on "Reproduction of Colour by Photographic Methods." 8 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Inspection and demonstration in the Parish of St. George's, Hanover-square. 2 p.m.

York Architectural Society.—Rev. Canon Argles on "The History and Development of York Minster." Illustrated.

Edinburgh Architectural Association.—Mr. Alexander Drew, C.E., on "The Practical Designing of Iron and Steel Roofing."—V. 8 p.m.

Architectural Association (Discussion Section).—Mr. H. Rose on "Dodges." 7 p.m.

Carpenters' Hall, London Wall.—Professor T. Roger Smith on "Our Ancient Cathedrals." 8 p.m.

THURSDAY, FEBRUARY 25.

Society of Antiquaries.—(1) Mr. C. H. Read on "An Inscribed Roman Prow Found in London." (2) Mr. F. Gann on "Antiquities Found in British Honduras." (3) Mr. C. E. Keyser on "The Figures of Saints Found on Devonshire Screens." 8.30 p.m.

Royal Institution.—Mr. J. W. Gregory on "The Problems of Arctic Geology." III. 3 p.m.

Society for the Encouragement of the Fine Arts.—Mr. G. C. Haité on "Design and Designers during Her Majesty's Reign." Illustrated. 8 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Dr. A. Wynter Blyth on "Sanitary Laws and Regulations Governing the Metropolis." 8 p.m.

FRIDAY, FEBRUARY 26.

Institution of Civil Engineers (Students' Meeting).—Paper to be read:—"Rockers and Expansion-Bearings as applied to Girders of Short Span," by Messrs. A. F. Baynham and F. B. H. Dobree. 8 p.m.

Royal Institution.—Lieut.-Col. C. R. Conder on "Palestine Exploration." 9 p.m.

SATURDAY, FEBRUARY 27.

Builders' Foremen and Clerks of Works' Institution.—Annual Dinner, King's Hall, Holborn Restaurant. 6.30 p.m.

Edinburgh Architectural Association.—Visit to North British Distillery.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

1471.—MEANS FOR OPENING AND CLOSING WINDOWS, &c.: *C. E. Batcock and Another.*—The inventors employ a main pivotted lever, either in one or more parts, one end being connected to a sliding rod by means of a pivotted rod; the other end being connected to the window, &c., through the medium of a rod, a pulley being carried at the end of the main lever, and running upon said rod; and a guard rod being provided to prevent the window, &c., having independent movement from the lever. Any convenient arrangement, such as a rack and lever, may be employed to operate sliding rod.

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*Police Station, Court House, &c.	Halifax T.C.	50*l.* and 25*l.*	April 30
*Plans for Club	Nuneaton Conservative Club	30 guineas	No date
*Alterations to School	Llanberis Sch. Bd.	10*l.*	do.

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
Business Premises, Boscombe, Bournemouth	Rainbow Dyeworks Co.	Jennings & Goater, Archt. G.P.O.-chambers, Bournemouth	Feb. 23
Rebuilding part of Old Brewery, Kendal	.....	J. Stalker, Archt. Kendal	do.
Villa, Omagh, Ireland	.....	E. J. Toye, Archt. Strand, Derry	do.
*Making-up, Paving, &c. part of Stonden Park	Lewisham Bd. of Wks.	Surv. Bd. of Wks. Offices, Catford, S.E.	do.
*Making-up, Paving, &c. part of Honor Oak Park	do.	do.	do.
*Guernsey Granite	Lambeth Guardians	J.W. Hartley, Grdn's Offices, Brook-st. Kennington	do.
Additions, &c. "Severn Cliffs," Cleved n, Somerset	.....	S. J. Wilde, Archt. Boulevard-chmbrs, Weston-sq.	Feb. 24
Two Houses and Shops, Cardiff-road, Cadoxton, Glam.	W. Scott	Gethin & Wallis, Archt. Westgate-street, Cardiff	do.
Road Works, Liverpool-road	Great Crosby (Lancs) U.D.C.	W. Hall, C.E. College-road, Great Crosby	do.
Sewer over Roath Brook	Cardiff Corporation	W. Harpur, C.E. Boro' Engr. Town Hall	do.
Sewers	Clayton (Yorks) U.D.C.	J. Waugh, C.E. Sunbridge-chambers, Bradford	do.
Pipe Sewers, Witton Park	Bishop Auckland U.D.C.	C. Johnston, Surv. 1, Cradock-st Bishop Auckland	Feb. 25
Schools, Glandore-avenue, Belfast	Committee	N. Fitzsimmons, Archt. 82, Royal-avenue	do.
Additions, Marble Works, Otley-road, Bradford	.....	Empsall & Clarkson, Archt. 7, Exchange	do.
House, Oxenhope, Yorks	.....	Judson & Moore, Archt. York-chmbrs, Keighley	do.
Water Supply Works, Kennet, Alloa, N.B.	Lord Balfour	Buchanan & Bennett, C.E. 24, George-st Edinburgh	do.
Road Metal	Annan (N.B.) District Committee	J. Galletly, Surv. Park-terrace, Annan	do.
Four Houses, East-the-Water, Bideford	.....	R. T. Hookway, Archt. Bridgeland-st. Bideford	Feb. 26
Granite, Gravel, &c.	Beds. County Council	County Surv. Bedford	Feb. 27
Lighthouse Work, Kingswear	Dartmouth Harbour Commrs.	E. H. Back, C.E. Dartmouth	do.
Mortuary at Cemetery	Folkestone Burial Bd.	Boro' Engr. Dover-street, Folkestone	do.
Gate Lodge at Asylum, Purdysburn, Belfast	Lunacy Commissioners (Ireland)	A. T. Jackson, Archt. 5, Corn-market, Belfast	do.
*Stone Paving	Borough of Stamford U.S.A.	J. Richardson, Boro' Surv. Stamford	do.
*Paving Streets	Camberwell Vestry	O. S. Brown, Vestry Hall, Camberwell, S.E.	Mar. 1
*Granite, Rag Stone, Tar Paving, Lime, Cement, &c.	do.	do.	do.
*Erecting Hall Keeper's Rooms, Vestry Hall	do.	do.	do.
Station Building, Clontarf, co. Dublin	G. N. R. Co. (Ireland)	Secretary, Amiens-street Terminus, Dublin	do.
*Underground Conveniences	Southend-on-Sea Corp.	H. Harlock, Clarence-rd. Southend	do.
Road Works, Back Surtees-street, &c.	Bishop Auckland U.D.C.	Surv. Town Hall Bldgs.	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered
Institute Buildings	Canterbury Corp.	A. H. Campbell, Surv. 28, St. Margaret's-street	Mar. 1
Shops and Houses, High-street, Gateshead	A. Cameron	J. G. Crone, Archt. 50, Grainger-st. Newcastle	do.
*Services and Materials	Hendon U.D.C.	S. S. Grimley, Public Offices, The Burroughs, Hendon, N.W.	do.
Station Buildings, Brislington, Bristol	G. W. Ry. Co.	Sec. Paddington Stn. W.	Mar. 2
*Street Improvements Works	Bromley U.D.C.	J. H. Norman, Council Offices, Bromley	do.
*Sheds	Leyton U.D.C.	W. Dawson, Town Hall, Leyton	do.
*Pipe Sewers, Manholes, &c.	do.	do.	do.
*Fire Station	Tottenham U.D.C.	P. E. Murphy, 712, High-road, Tottenham	do.
*Asphalte, Portland Cement, Lime, Thames Ballast, &c.	St. Saviour's Bd. of W. (Southwark)	G. E. Norrish, Offices, Emerson-st. Blackfriars, S.E.	Mar. 3
*Road Making and Lighting	Kingston-on-Thames Corp.	Boro' Surv. Clattern House, Kingston	do.
*Stoneware Drain-pipes Traps	Hove U.D.C.	The Surveyor, Town Hall	do.
Parish Hall, &c. St. Peter's, Hereford	.....	Nicholson & Hartree, Archt. Hereford	do.
*Sewage Disposal Works	Uckfield U.D.C.	G. Maxwell Lawford, 13, Victoria-street, S.W.	do.
*Construction of Winter Garden on Pier	Southend-on-Sea Corp.	Thompson & Greenhalgh, Bank-chmbrs, Southend	do.
Hospital Pavilion, Morton Banks	Keighley, &c. Hospital Board	Judson & Moore, Archt. York Chmbrs. Keighley	do.
*Laundry Drying Arrangements	Islington Guardians	Mr. Musto, St. John's-road Workhouse	Mar. 4
*Alterations, Municipal Offices	Rotherham Corp.	R. J. Lovell, 46, Queen Victoria-street, E.C.	Mar. 5
Dispensary and Residence	Mullingar (Ireland) Union	J Kenny, The Dispensary, Loughnavalley, Mullingar	do.
Extensions to City Hospital, Stoney Stanton-road	Coventry Corp.	G. & I Steane, Archt. Little Park-st. Coventry	Mar. 6
Widening Stone Bridge, Nunnington, Yorks	.....	W. Stead, C.E. Northallerton	do.
*A Building at Colchester	.....	W. C. Street, 7, Victoria-street, S.W.	Mar. 8
*Materials (various)	Fulham Vestry	Town Hall	Mar. 10
*Laundry House, Baths, and Lavatories	Holborn Union	C. E. Vaughan, 25, Lowther-arcade, W.C.	do.
*Laboratory	Essex C.C.	County Offices 78, Duke-street, Chelmsford	Mar. 11
*Painting and Repairs	L.C.C.	Architect's Dept. Springgardens, S.W.	Mar. 17
Residence, Buxton, Derbyshire	F. Smallman	W. Bugden & Son, Archt. Hanley, Staffs	No date
Boarding House, West Park, Harrogate	G. Goodrich	A. A. Gibson, Archt. Yorks, Bank Chmbrs. Harrogate	do.
Additions to Chapel, Danby End, Danby, Yorks	.....	J. W. Taylor, Archt. Newcastle-on-Tyne	do.
Schools, France-street, Blackburn	.....	O. Hill, Archt. Albert-sq. Manchester	do.
Houses, Wood Royd Estate, West Bowling, Bradford	.....	S. Robinson, Archt. Cheapside, Bradford	do.
*Infirmary, Nurses' House, Porter's Lodge	Kingston Union	W. H. Hope, Union Offices, Portsmouth-road, Kingston-on-Thames	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Sanitary Inspector	Hampstead Vestry	110*l.* rising to 140*l.*	Mar. 1
*Clerk of Works	Coventry Corp.	4*l.* per week	do.
*Secretary	R.I.B.A.	400*l.* per annum	Mar. 20

Those marked with an asterisk (*) are advertised in this Number. *Competitions, p.* iv. *Contracts, pp.* iv. vi. & viii. *Public Appointments, pp.* xvi. & xix.

3,485.—CARRYING AWAY WATER OF CONDENSATION FROM CORRUGATED IRON ROOFS, &c.: *J. Carter.*—Inventor arranges the condensation gutter, constructed of zinc, galvanised iron, &c., around the sides of the building or shed, in such manner that a portion of the gutter projects inwardly, so as to catch any drips or moisture, the condensation gutter being merely fixed upon the fascia or plate, and turned down into the ordinary gutter outside, after passing under the corrugated sheets.

3,831.—STREET AND YARD GULLEYS: *J. Willoughby, Jun.*—Inventor constructs gulley of usual pattern and shape, and in connexion with the discharge opening to the sewer from the sealing-chamber he attaches a valve, made of any approved material, this being so arranged that, while providing for the free passage of any discharge from the gulley to the sewer, it prevents the return of sewage from the sewer through the gulley to the street, yard, &c.

3,980.—SLIDING WINDOWS: *W. Youlton.*—Inventor uses a form of readily accessible, though concealed, pulleys which can be easily removed for the purpose of facilitating the removal of the chains or cords affording the connexion between the sashes. The position given to this pulley is in a direct vertical line with the chain attachment to the sashes, and enables the concealment of the chains or cords to be readily effected. Subsidiary advantages are the prevention of the sashes sliding beyond a given point, and the prevention of any stretching of the chains or cords.

4,575.—WATER-CLOSET SEATS: *F. Sharp and Another.*—In constructing a simple form of hinged seat, which will not allow the cover to fall back against wall, or seat to fall entirely against cover, when pan without seat is in use, inventors provide a back rail with thicker end pieces clamped on, and projecting beyond rail, Between these projections cover is received. A roller with metal ferules is attached to back of seat. Indiarubber buffers between cover and seat are adopted.

5,877.—SASH POCKET CHISEL: *A. Bourne.*—Relates to chisels formed of thin parallel blades of varying width in connexion with the same handle, by means of a holder provided with an adjustable plate.

9,585.—SETTING-OUT TOOL: *W. J. Harrison and Another.*—Relates to an instrument for mechanically obtaining the lengths, angles of twist, and shape of face mould for handrailing, stair-rails, ramped stone copings, smith work, &c. Instrument consists of plates of metal or wood, &c., their edges making an angle of 90 deg., having longitudinal slots in each piece, and so graduated to scales and pivotted together that the person operating them may read off the sizes, shape, and angles required for the construction of handrailing, stairs, roofing, or the like.

15,565.—WINDOW-SASHES AND FRAMES: *W. J. Penny.*—In place of the ordinary way of hanging window-sashes, inventor makes them narrower and hangs them on a wood iraveller running between the beads on either side of sash frame to which sash lines are attached. Sashes are arranged to slide up and down, and both portions of sash are constructed to fold inwards for cleaning.

NEW APPLICATIONS FOR LETTERS PATENT.

FEBRUARY 1.—2,594, H. Jenkins and W. Addis, Chimney Cowls, Ventilators, Air Extractors, &c.—2,634, W. Dunn, Gate.—2,667, A. Boult, Preservative Paints, Pigments, &c.

FEBRUARY 2.—2,689, G. Ward, Chimney and Ventilating Shaft Top Down Draught Preventor and Wind Guard.—2,698, E. Bauer, Parquetry or Inlaid Flooring.—2,703, T. Drummond, Chimney Cowls and Ventilators.—2,733, W. Witham, Flushing Water-closets, Urinals, &c.—2,737, J. Morgan, Electric Alarm Sash Fastener.—2,762, L. Doig, Door Checks.—2,767, W. Thompson, Hollow Building Blocks and Apparatus for making same.

FEBRUARY 3.—2,808, W. Dawson and A. Burn, Rule Saw.—2,834, J. Shanks, Lavatories, baths, sinks, &c.—2,840, D. Keith, Windows and Doors.—2,869, W. Holt, Screens for builders, contractors, &c.—2,878, A. Hall, Construction and Arrangement of Hospitals, applicable also to other buildings.

FEBRUARY 4.—2,942, M. Maylard, Water Closets.—2,959, M. Holt, Weightless Window Sash and Frame.—2,986, J. Major, Fire Grates.—3,034, W. Jackson and R. Buck, Screw-presses for pressing bricks, roofing tiles, floor tiles, &c.

FEBRUARY 5.—3,054, J. Berry, Brick Die or Box.—3,102, C. Kunkel, Automatic Door-opening Devices.—3,141, A. Boult, Ropes for cranes, hoists, &c.

FEBRUARY 6.—3,155, A. Hill and A. Barrett, Combined Nail and Screw.—3,157, W. Hanlon, Automatic supply of disinfectants to water closets, &c.—3,191, J. Lea and J. Perrins, Pulley Frames for chandeliers, &c.—3,210, H. Webb, Windows and their sashes and casements.—3,225, G. Freeman and W. Shoesmith, Intercepting or Disconnecting Traps.—3,236. A. Leroy, Stone-Sawing Machines.

PROVISIONAL SPECIFICATIONS ACCEPTED.

29,698, F. Hughes, Sashes of Windows, &c.—30,009, J. Eckersley, Coping for Walls, &c.—410. G. Wincqz and H. Machepy, Machinery for Sawing Stone —411, G. Wincqz and H. Machepy, Sawing Stone.—873, E. Hackney, Rabbet and Slot Saw.—988, C. Conder, Fixing of Door Handles.—1,135, G. Palmer, Securing Doors.—1,289, J. Coulthurst, Joining Sanitary Pipes.—1,507, L. Schlentheim, Hearth Stones and Curbs.—1,530, W. Allen, Flushing Drains, &c.—1,617, G. Buckley, Kitchen Ranges.—1,684, A. Binkerd, Saw Clamp.—1,839, J. Smith, Chimney Pots.—1,915, H. Waddington, Water-closet Seats.—1,933, H. Hastings, Gas Fittings.—197, E. Gulliford, Shop Window Fittings.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.

2,726, A. Ransom, Chimneys and Ventilating Shafts.—2,960, J. Lumsden, Fastening Cords, &c., to Window Sashes, &c.—4,892, J. Main, Built Columns, Beams, and Girders.—6,015, J. Green and W. Gates, Waste Water-closets.—6,861, C. Wall, Building Blocks.—7,227, C. Wall, Building Blocks.—27,583, F. Clere, Construction of Window Sashes and Frames to facilitate Cleaning and other operations.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

January 26.—By C. W. DAVIES.

Barnsbury.—70, Muriel-st., 61 yrs., g.r. 5*l.*	£165
Pentonville.—8, Claremont-sq., u.t. 9½ yrs., g.r. 8*l.* 8s., r. 52*l.* 10s.	220

By T. B. WESTACOTT.

Camden Town.—Great College-st., &c., l.g.r. 38*l.* u.t. 44¾ yrs., g.r. 20*l.*	330
Notting Hill.—All Saints'-rd., a profit rental of 20*l.* for 35½ yrs.	290

By WYER, ADAMS & GLOVER (at Mason's Hall Tavern).

Kennington-rd.—"The Ship" p.-h., lease for 50 yrs., r. 150*l.*, with goodwill	2,150
Brompton.—Hollywood-rd., "The Hollywood Arms" p.-h., lease for 57½ yrs., r. 100*l.*, with goodwill	8,020

By SLEE, SON, & CARDEN (at Mason's Hall Tavern).

Merton, Surrey.—Kingston-rd., "The Old Leather Bottle" p.-h., c.; also four freehold building plots adjoining	7,950
Egham, Surrey.—High-st., "The Catherine Wheel" Hotel, a freehold rental of 176*l.* 10s., with reversion	4,800

By W. J. BARNICOAT (at Falmouth).

Budock, Cornwall.—"Belmont House" and 1 a. 1 r. 5 p., u.t. 742 yrs., g.r. 6d.	1,300
A plot of garden land, 20 p., u.t. 742 yrs., g.r. nil	210

By H. SPENCER & SONS (at Gainsborough).

Upton, Lincolnshire.—"Upton Lodge Farm," 105a. 3r. 27p., f.	3,760

January 27.—By C. CANEY.

Hounslow, Middlesex.—1 and 2, Kent Villas, f., e.r. 60*l.*	800

By M. LIELL & SON.

Bow.—116 to 126 (even), Devon's-rd., u.t. 65¼ yrs., g.r. 27*l.*	1,230
Bromley-by-Bow.—1 to 7 (odd), Norris-rd., u.t. 65¼ yrs., g.r. 14*l.*	580
Clapton.—243, Glyn-rd., u.t. 77 yrs., g.r. 7*l.* 10s., r. 45*l.*	355
Victoria Pk.—49, Cawley-rd., u.t. 58 yrs., g.r. 6*l.*, r. 38*l.*	410

By DOUGLAS YOUNG & CO.

Dulwich.—314, Friern-rd., f., e.r. 50*l.*	695
Ilford.—2, Belmont-rd., u.t. 999 yrs., g.r. 7*l.* 10s., e.r. 45*l.*	340
Sutton, Surrey.—Collingwood-rd., 2 plots of building land, f.	290

By H. N. NEWTON & Co.

Strand.—35, Stanhope-st., f., r. 90*l.* £880
By C. RAWLEV CROSS (at Shepherd's Bush).
Hammersmith.—17 and 19, Wendell-rd., u.t. 80 yrs., g.r. 12*l.*, e.r. 60*l.* 465
By A. DOWELL (at Edinburgh).
Broughton, &c., Peebleshire. — The estate of "Rachan and Quarter," 1,651 a. 1 r. 28 p., e.r. 1,738*l.* 10s. 45,300
By J. LEES & BURCHELL (at Redhill).
Horley, Surrey.—"Inholmes" and 3 a. 1 r. 36 p., f. 320
An enclosure of land, 3 a. 3 r. 33 p., u.t. 922 yrs., g.r. nil 150
By W. DEW & SON (at Pwllheli).
Llanarmon, &c., Carnarvon. — "Penarth Bach Farm," 56 a. 0 r. 39 p., f. 2,320
"Loo Las Farm," 15 a. 3 r. 31 p., f. 620
January 28.—By C. C. & T. MOORE.
Victoria Dock.—Victoria Dock-rd., "The Ship" Tavern, f., r. 100*l.* 2,550
St. George's East.—1, Bowyer's-bldgs., f., r. 32*l.* 10s. 200

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard &c.

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G. ton	8/0/0	0/0/0
Teak, E.I. ....load	11/0/0	16/0/0
Sequoia, U.S.ft.cu.	1/9	2/0
Ash, Canada load	2/15/0	4/0/0
Birch, do.	3/15/0	5/10/0
Elm, do.	3/10/0	4/15/0
Fir, Dantsic, &c..	2/15/0	4/15/0
Oak, do.	2/10/0	3/15/0
Canada	5/0/0	6/0/0
Pine, Canada red	0/0/0	0/0/0
Do. Yellow	2/5/0	4/5/0
Lath, Dantsic, fath	4/10/0	5/10/0
St. Petersburg..	5/0/0	6/10/0
Wainscot, Riga, &c., log	2/10/0	4/15/0
Odessa, crown....	2/10/0	4/15/0
Deals, Finland 2nd & 1st std 100	9/0/0	9/10/0
Do. 4th & 3rd...	9/0/0	9/10/0
Do. Riga	7/10/0	8/10/0
St. Petersburg, 1st yellow... .	11/0/0	13/10/0
Do. 2nd yellow	10/0/0	11/0/0
Do. white	9/10/0	11/10/0
Swedish	9/0/0	16/10/0
White Sea.....	10/10/0	17/0/0
Canada, Pine 1st	20/0/0	23/0/0
Do. do. 2nd	14/10/0	16/0/0
Do. do. 3rd, &c.	7/0/0	10/10/0
Do. Spruce, 1st.	9/10/0	11/10/0
Do. do. 3rd and 2nd	7/15/0	9/0/0
New Brunswick	7/0/0	10/10/0
Battens, all kinds	5/0/0	20/0/0
Flooring boards, sq., 1 in. prep. 1st	0/9/0	0/16/0
Do. 2nd	0/7/6	0/12/6
Other qualities—	0/5/9	0/7/0
Cedar, Cuba, ft.	/4½	/5
Honduras, &c.	/4	/5
Mahogany, Cuba	/4½	/6
St. Domingo, cargo av.	/4½	1/3
Mexican, do. do.	/4	/5
Tobasco, do. do.	/5	/7
Honduras, do.	/5	/6½
Box, Turkey, ton	4/0/0	15/0/0
Rose, Rio.....	7/0/0	16/0/0
Bahia	6/0/0	15/0/0
Satin, St. Doming.	0/0/7	0/2/0

TIMBER *(continued)*.		
Satin, Porto Rico	0/0/7	0/1/6
Walnut, Italian ..	0/0/8	0/0/7
METALS.		
Iron—Pig, in Scotland .....ton	2/6/9	0/0/0
Bar, Welsh, in London.....	5/15/0	5/17/6
Do. do. at works in Wales	5/10/0	5/12/6
Do. Staffordshire, in London.....	5/15/0	6/10/0
COPPER — British cake and ingot	54/5/0	54/15/0
Best selected ..	55/0/0	55/10/0
Sheets, strong..	60/0/0	61/10/0
Chili bars	51/1/3	0/0/0
YELLOW MTL lb.	0/0/5	0/0/5½
LEAD — Pig, Spanish ...ton	11/12/6	11/13/9
English com. brands	11/15/0	11/17/6
Sheet, English 6 lbs. per sq. ft. and upwards ..	12/18 9	0/0/0
Pipe.....	13/8 9	0/0/0
ZINC — English sheet.....ton..	20/10/0	0/0/0
Vieille Montagne	21/10/0	0/0/0
Spelter	17/12/6	17/13/9
TIN—Straits	62/15/0	0/0/0
Australian.....	62/5/0	62/15/0
English Ingots..	65/0/0	66/0/0
Banca	61/0/0	0/0/0
Billiton	59/15/0	60/0/0
OILS.		
Linseed .....ton	15/2 6	0/0/0
Cocoanut, Cochin	27/15/0	0/0/0
Do. Ceylon	24/0/0	0/0/0
Palm, Lagos.....	24/10/0	0/0/0
Rapeseed, English pale	27/10/0	27/15/0
Do. Brown	27/0/0	27/10/0
Cottonseed ref. ..	15/17/6	16/10/0
Oleine.....	18/10/0	19/10/0
Lubricating U.S.	0/6/3	0/7/6
Do. black	0/4/9	0/6/6
TAR — Stockholm barrel	22/0	0/0/0
Archangel.....	0/12/6	0/0/0
Turpentine....ton	21/0/0	21/2/6

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.* N.B.—We cannot publish Tenders unless authenticated by the name and address of the sender: and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under £100, unless in some exceptional cases and for special reasons.]

ALDERSHOT.—For the construction of sewerage works, Lower Farnham-road and Church-road, for the Urban District Council. Mr. Banks Rushford, surveyor, 126, Victoria-road, Aldershot:—

Lee & Sons £299	0	T. Turner, Blackwater*	£252 19

* Accepted.

BECKENHAM.—For the erection of a wall, Alexandra Recreation Ground, for the Urban District Council. Mr. John Angell, Engineer:—

H. E. Stringer £284	9 7	Thomas & Edge,	
H. Heathfield..... 226	0 0	Woolwich* £218	0 0

*Accepted.

BIRMINGHAM.—For the execution of sewerage works, Yardley, for the Rural District Council. Mr. A. E. Currall, Surveyor, Solihull, and 460, Stratford-road, Sparkhill, near Birmingham. Quantities by Surveyor:—

H. Weldon £5,299	18 1	J. Mackay.....£3,713	18 0
S. Turner 4,482	13 0	Jones & Fitz. maurice	3,664 18 8
G. Law 4,313	17 0	Currall & Lewis,	
White, J., jun..... 4,140	0 5	Birmingham*	3,550 12 2
Biggs, J. 3,904	5 1		

* Accepted.
[Surveyors' estimate, £4,000. 11s. 2d.]

BLYTH (Northumberland).—For making a macadamised road 1 mile 1 fur. 2 chs. in length) between Blyth and Newsham, for the Joint Committee of the Blyth and Cowpen Urban District Councils. Mr. Robert Grieves, surveyor, Waterloo, Blyth:—

W. T. Wier £3,503	0 0	J. W. Robson £1,993	0 8
R. Hudson 2,845	0 0	J. Wardlaw 1,974	10 11
J. Adams 2,457	3 0	T. Callighan..... 1,868	3 8
G. T. Manners 2,359	0 0	J. Robson 1,789	18 0
G. Bailey 2,333	0 0	G. E. Simpson, Newcastle-on-Tyne* .. 1,766	7 0
J. M. Heatley..... 2,331	19 0		
H. M. Nowell..... 2,200	0 0		

* Accepted.

BROMLEY (Middlesex).—For the erection of refuse destructor buildings, &c., Glaucus-street, for the Poplar Board of Works. Mr. Wm. Oxtoby, Chief Surveyor:—

Beaman & Deas.....£10,044	0	Goddard, Massey, & Warner, Nottingham*	£7,998 14
Maslove, Alhott, & Co. 8,734	1		

* Accepted.
[This includes £75 per year for five years for maintenance.]

BROMLEY (Kent).—For new school for juniors, Bromley Common, for the School Board. Mr. Chas. Bell, architect, 3, Salter's Hall-court, Cannon-street, E.C. Quantities by Messrs. C. Stanger & Son, surveyors, 21, Finsbury-pavement, E.C.:—

W. Holt & Sons £8,183	10	J. C. Arnaud, Bromley, Kent*	£7,783 0
General Builders' Association, Limited 8,171	11	Chessum & Sons 7,760	0
Thos. Crossley 7,798	0	M. Duthoit 7,526	0
T. D. Gratz 7,789	0		

*Accepted.

BROMYARD.—For the erection of house, for the Governors of Bromyard Grammar School. Mr. F. B. Kempson, architect, 138, Widemarsh-street, Hereford:—

J. Davies £1,899		Herbert & Son £1,400	
G. Lewis 1,810		A. Newbold, Bromyard*.. 1,345	
W. James..... 1,549			

* Accepted.

BUCKINGHAM.—For erecting Christ's Almshouses, Buckingham. Mr. Charles Bell, architect, 3, Salter's Hall-court, Cannon-street, E.C.:—

Tibbetts.....£1,069		Tombs & Sons* £705	
Grist & Co. 988		Tompkins..... 649	

* Accepted.

BURTON-ON-TRENT.—For the erection of school buildings, Church Gresley, for the School Board. Mr. R. C. Clarke, architect, Prudential-buildings, Queen-street, Nottingham:—

Bromhead Bros. £9,974	13	J. H. Vickers, Ltd.....£7,596	0
H. Smith 8,567	0	H. Vickers 7,460	0
J. Oscroft..... 8,468	0	Slater & Harrison 7,408	0
Enoch Hind 7,997	0	Edwin Clarke 7,225	0
J. Gorvett 7,979	0	R. Kershaw 7,165	0
T. Barlow 7,849	0	Wm. Moss 6,980	0
Wm. Smith 7,840	0	C. Venning, Swadlincote (accepted)..... 6,965	0
J. Hutchinson 7,630	0		

CARLISLE.—For the erection of the "Railway Tavern" and warehouse, Botchergate (2 contracts), for Mr. Rickerby. Mr. H. Higginson, architect, 3, Lonsdale-street, Carlisle. Quantities by the architect:—

W. F. Pickering, Wreay, Carlisle* £3,600

* Accepted for both contracts, subject to certain schedule deductions.

CHARLTON.—For paving, &c., Woolwich-road, for the Lee Board of Works. Mr. John Rowland, Surveyor, Board of Works Offices, Old Charlton, Kent. Quantities by surveyor:—

Thos. Adams.....£4,250	11 6	W. Griffiths.....	3,965 7 8
Fry Bros. 4,218	11 10	Messrs. Mowlem & Co., Westminster*	3,917 0 0
W. H. Wheeler 4,256	2 10		
Universal Works Construction Company, Ltd. 3,883	8 7		

* Accepted.
[Surveyor's estimate, £4,056. 7s. 1d.]

CROYDON.—For the erection of an isolation hospital, Beddington Corner, Carshalton, for the Rural District Council. Messrs. R. M. Chart & Son, architects, Union Bank-chambers, Croydon. Quantities by Messrs. Franklin & Andrews, 25, Ludgate Hill, E.C.:—

W. Wallis.....£18,995		Lorden & Sons.....£17,000	
Rice & Son..... 18,690		D. Waller 16,990	
Peters & Son..... 18,600		J. Burges 16,200	
Josolyne & Young 18,336		A. Bullock 15,970	
Goulder 17,834		Burnand 15,965	
J. Smith & Sons 17,777		Page 15,934	
Potter 17,750		D. Stewart & Sons, Wallington* 15,878	
Longley & Co. 17,449			

*Accepted subject to approval of Local Government Board.

EGREMONT (Cumberland).—Accepted for paving, &c., Moorrow, for the Urban District Council of Egremont, Cumberland. Mr. G. Boyd, C.E., 33, Queen-street, Whitehaven:—
W. B. Wilkinson & Co., Newcastle-upon-Tyne, 3s. 4d. per super yard.

GOLSPIE (Sutherland).—Accepted for the construction of water supply works, Lairg, for the Sutherland County Council. Mr. John Baxter, C.E., Clynemilton, Brora. Quantities by Engineer:—
T. Munro, Wick £961 18 1

HADDINGTON (N.B.).—For the construction of two miles sewers, &c., Gullane, for the County Council. Messrs. Thomson & Wright, C.E., 22, Rutland-square, Edinburgh:—

Andrew Waddell & Son £1,687	4 11	John Martin £847	19 2
Archibald Fraser .. 1,014	17 2	Richard Wallace 828	10 7
John Morris & Son.. 876	2 7	LawrenceKelly, Edinburgh (accepted) .. 784	10 7

LONDON.—For new shop-front and interior trade fittings, from plans prepared by Mr. D. H. Waddell, architect, 20, High Holborn:—

Saga & Co.....£867	10	Drew & Cadman* £634	10
Spreckley 712	10		

*Accepted as amended.

LONDON.—Accepted for erecting two cottages in Winchelsea-road, Tottenham, for Mr. T. E. Baker:—
H. Knight & Son, Tottenham £500
[No competition.]

LONDON.—For alterations, additions, and repairs to "The Lord Derby" public-house, Woodpecker-road, New Cross, S.E. Mr. W. Stewart, architect, 4 and 5, Aldgate, E.C.:—

Harris & Wardrop £2,559	0	H. L. Holloway.....£2,043	0
Cox 2,498	0	W. Harbrow, South Bermondsey*..... 2,635	7
Burman & Sons 2,307	0		
W. Gladding 2,275	0		

* Accepted.

HOVE (Sussex).—For the supply of 2,500 yds. hand-picked flints, for the Corporation. Mr. H. H. Scott, Town Surveyor:—

	Yards willing to deliver.	Delivered at Farm-road depot.	Delivered at Church-road depot.	Delivered at Sackville-road depot.	Remain at the contractors' depot and carted thence by the Council's own carts as required.
	yds.	yds. s. d.	yds. s. d.	yds. s. d.	yds. s. d.
W. Stanbury	400 or more if required.	—	—	7 9	—
W. Hillman	1,000	6 6	6 6	6 6	5 6 Station-road, Portside.
T. Dudney*.....	500	—	—	6 3	—
ditto*	200	—	—	—	6 0 Knolle Depot.
R. Brown	200	—	—	6 3	—
A. E. Hardwick.....	250	—	—	—	6 0 Dean Corner, opposite Aldrington Pumping Works.

* Accepted.

LONDON.—For the supply of broken granite and granite spalls for the Vestry of Paddington. Mr. G. Weston, Surveyor.

	BROKEN GRANITE.		GRANITE LUMPS.
	PRICE Per Cubic Yard.	PRICE per Ton.	PRICE per Ton.
	s. d.	s. d.	s. d.
Alderney.			
Le Maitre, G., delivered at side of Parish Wharves	15 9	13 1	—
Sommerfeld, L.,* do.	15 0	—	—
Do. delivered at Queen's Park, or Kilburn Railway Depots	—	—	—
Auchinbee.			
Wilson, W., delivered at side of Parish Wharves†	15 0	13 0	—
Bierphes.			
Kaltenbach & Schmitz, delivered at side of Parish Wharves	13 0	11 1	—
Blue Basalt.			
Lyon, J. L. & Co., delivered at side of Parish Wharves	14 11	12 4	—
Blue Elvan.			
Runnalls, J. delivered at side of Parish Wharves	14 9	14 0	11 9
Ceiriog.			
The Ceiriog Granite Co., Ltd., delivered at Paddington Railway Depot	—	14 8	13 2
Clee Hill.			
Clee Hill Granite Co., delivered at Paddington, or Kilburn Railway Depots	—	14 3	11 6
Croft Hill.			
The Croft Granite, Brick, and Concrete Co., delivered at Paddington Railway Depot	—	12 8	10 6
Enderby,			
Nowell & Robson, delivered at Kilburn or Queen's Park Railway Depots	13 7	12 5	10 6
Tildesley, Shepherd, & Mabson, do.	13 2	12 0	9 6
Enderby, Stoney Stanton, and Narborough.			
Van Praagh & Co., delivered at Kilburn or Queen's Park Railway Depots	—	12 6	—
Guernsey.			
Beevers, F. & H., delivered at side of Parish Wharves*	—	12 9	—
Fennings, R. L. & J., do.	18 0	14 9	10 6
Griffiths, Wm., do.	17 8	14 6	10 8
Manuelle, A. & F.,* do.	16 8	—	—
Mowlem, J., & Co., do.	17 6	14 6	10 6
Narborough.			
Narborough and Enderby Granite Quarries Co., delivered at Kilburn Railway Depot	—	10 1	—
do. do. Paddington do.	—	10 11	—
Nowell & Robson, delivered at Kilburn or Queen's Park Railway Depots	14 4	13 2	10 6
Tildesley, Shepherd, & Mabson,* do.	14 0	—	—
Penlee.			
Runnalls, J., delivered at side of Parish Wharves	14 9	14 0	11 9
Quenast.			
Manuelle, C. M., delivered at side of Parish Wharves	13 9	12 0	—
Rebb.			
Sommerfeld, L., delivered at side of Parish Wharves	11 9	10 3	—
do. delivered at Railway Depot, name not stated	12 2	10 7	—

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Blue Elvan.			
Runnels, J., delivered at side of Parish Wharves	12 9	—	—
Guernsey.			
Manuelle, A. & F., delivered at side of Parish Wharves	16 3	—	—
Narborough.			
Tildesley, Shepherd, & Mabson, delivered at Kilburn Railway Depot	14 0	—	—

† Not a proper form of tender.

* Accepted.

LONDON.—For the erection of new factory at Bromley-by-Bow, E., for Messrs. Kemball, Bishop, & Co. Messrs. Wigg. Oliver, & Hudson, architects, 7, Bedford-row, W.C., and 80, Leman-street, E. Quantities by Messrs. Goodman & Simpson :—

H. A. Bishop	£2,975	W. Shurmur	£2,493
W. Gregar & Son	2,694	Atherton & Dolman*	2,370
M. Patrick & Son	2,630	* Accepted.	

LONDON.—For alterations and additions to shop and premises, Nos. 116 and 118, The Grove, Stratford, E., for Messrs. Howes Bros. Messrs. Wigg, Oliver, & Hudson, architects, 7, Bedford-row, W.C., and 80, Leman-street, E. :—

J. Jarvis & Sons	£879	Battley, Son, & Holness†	—
Atherton & Dolman*	815		
*Accepted.		† Withdrawn.	

LONDON.—Accepted for the erection of fireproof staircase, &c., to factory. Durward-street, Whitechapel, E., for Messrs. S. Schneiders & Sons. Messrs. Wigg. Oliver, & Hudson, architects, 7, Bedford-row, W.C., and 80, Leman-street, E. :—

Brown, Son, & Blomfield £490

LONDON.—For alterations and additions to the "General Havelock" public-house, Peckham, S.E. Mr. W. M. Brutton, architect. No quantities supplied :—

Bryan	£1,969	Barton	£1,441
H. Wall & Co.	1,684	Tyerman	1,404
J. O. Richardson	1,467		

LONDON.—For the construction of an underground convenience, High Holborn, for the St. Giles District Board of Works. Mr. Geo. Wallace, Surveyor. 197, High Holborn, W.C. :—

Thomas & Edge	£4,202	C. W. Killingback & Co., Camden Town*	£3,697
Neave & Son	3,957	* Accepted.	
W. Thompson	3,919		

LONDON.—For wiring, &c., in connexion with the installation of the electric light at Blackwall Tunnel, for the London County Council :—

Laing, Wharton, & Down, Ltd. ..... £4,700.

MELMERBY (Penrith).—For the execution of water-supply works, for the Rural District Council :—

J. & W. Scott, Penrith £440 12 6

MEXBOROUGH (Yorks.).—For the execution of road works, Hall-gate and Cross-gate, for the Urban District Council. Mr. G. F. Carter, Surveyor, Council Offices, Mexborough :—

	Hall-gate.	Cross-gate.
Wm. Hobson	£417 13 6	£316 0 11
C. A. Walker	403 8 2	301 6 8
G. Eyre	385 0 0	281 0 0
F. Eyre, Sheffield (accepted)	343 11 10	267 6 0

MOVILLE (Ireland).—For the erection of two dwelling-houses, or Mr. Jas. M'Laughlin, Londonderry, and Mr. P. Glackin, Moville. Mr. Foster Nolan, architect, Greencastle, co. Donegal :—

	Per house.		Per house.
Daniel Gillespie	£407 10	Charles Doherty	£363 0
James Gallagher & Sons	435 0	D. McDermott, Moville,	
Michael M'Daid	365 0	co. Donegal (accepted)	350 0

NEWPORT (Salop). — For the erection of school-buildings, Edgmond, for the Committee of Managers. Messrs. J. R. Veall & Son, architects, Wolverhampton. Quantities by the architects :—

Willcock & Co.	£1,169 8 3	Bradnev & Lloyd	£951 4 0
T. Pace	1,104 4 11	J. G. Muirhead	883 10 1
G. Bullock	1,076 8 6	E. Whittingham, Newport, Salop*	863 15 6
A. Roper	1,079 2 6	Tommy Bros.	855 11 11
H. Gough	1,023 16 9	* Accepted.	
G. K. Downing	975 0 6		

OLNEY (Bucks).—For additions, &c., to school buildings, for the School Board. Mr. C. Dorman, architect, 51, Abington-street, Northampton :—

J. P. White	£1,337	M. Clayson	£1,035
T. H. Coleman	1,289	G. F. Sharman	990
W. Whitbread	1,159	J. C. Sharman	943
J. T. Wingrove	1,159	G. E. Fathers, Bedford*	924
Rootham & Jeakings	1,137	* Accepted.	

REDBOURN (Herts.).—For the re-erection of "Bylands," Redbourn, Herts, for Mr. J. M. Ashforth. Mr. David Burnett, architect :—

Thompson & Beveridge	£2,035	Marriage & Co., The Oval, Croydon*	£1,510
C. Ancell	1,950	S. C. Smith	1,470
C. Miskin	1,837	*Accepted.	
F. Hall	1,625		

SOLIHULL.—For the erection of ambulance depot at the Infectious Diseases Hospital, Lyndon End, Solihull. Mr. A. E. Currall, Surveyor, Solihull :—

S. Turner	£1,130	H. W. Thompson	£800
J Freeman	820	H. Gregory	760
[Surveyors' estimate, £750.]			

SOUTHEND (Essex).—For works at the London Hotel, Southend-on-Sea, for Mr. A Willson. Messrs. Burles & Harris, architects, Clarence-street, Southend. Quantities by Mr. Henry Bushell, F.S.I., 33, New Bridge-street, City :—

Contract A.—Structural Alterations and Decorative Works.

A. E. Symes	£785	F. Woodhams	£602
F. Dupont	725	T. Whur, Southend*	580

Contract B.—Bar Fittings and Hard Wood Finishings, &c.

Brown, Kreuse, & Co.	£660	Lascelles & Co.	£735
A. E. Symes	887	F. Dupont, Colchester*	730
* Accepted.			

SOUTHEND-ON-SEA.—For wood-paving, Clarence-road, for the Corporation. Mr. Harold Harlock, Borough Surveyor, Clarence-road, Southend :—

	s. d.		s. d.
The Acme Wood-Flooring Co.	13 0	The Improved Wood-Paving Co., 46, Queen-Victoria-street, E.C. *	10 6
Wm. Griffiths	11 4	(Accepted).	
*Per yard super.			

SOUTHEND.—For the erection of small iron church, Southchurch, Southend-on-Sea, for the Rev. Philipots :—

T. J. Hawkins, Ashford, Middlesex £144

STANMORE.—For the erection of a house on the Stanmore Park Estate, Stanmore, Middlesex, for Mr. W. S. Prichard. Messrs. Boehmer & Gibbs, architects, 11. Spring-gardens, S.W. :—

McCormick	£5,050	L. Whitehead & Co.*	£4,800
Bailey	4,950	* Accepted.	

ST. ANNE'S-ON-SEA. — Accepted for providing and laying pipes, &c., for the Urban District Council. Mr. H. Bancroft, C.E. 88, Mosley-street, Manchester :—

Josiah Dule, Northwich £698 1 2

WARRINGTON.—For the construction of four streets and thirteen passages, for the Corporation. Mr. Thomas Longdin, Borough Surveyor, Town Hall, Warrington :—

William Heaton*	£337 13 0	F. T. Bennie‡	£24 12 9
Thomas Stringer†	324 13 2		
* Nine streets and passages.		† Seven streets and passages.	
		‡ One street.	

WEMBLEY.—Accepted by the Wembley Park Company for the construction of exhibition buildings at Wembley Park, London :—

T. J. Hawkins, Ashford, Middlesex £5,000

WIMBLEDON.—For the erection of five cottages, Hubert-road, for Mr. W. M. Gilbert, 12, Havelock-road, Hastings. Mr. Wm. Cooper, architect, 21, Havelock-road, Hastings :—

General Builders, Ltd.	£2,284 0	J. Barges	£1,850 0
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T. L. Fearon	2,196 0	W. Greenfield	1,762 10
Lorden & Son	2,687 0	S. Boothman	1,760 0
Dockerill & Son	2,080 0	F. Doubell & Co.	1,630 0
C. Fryer	2,049 0	H. Brown	1,590 0
G. Burrage	1,941 0		

YARDLEY.—Accepted for fire stations, for the Yardley District Council :—

T. J. Hawkins, Ashford, Middlesex £134

TO CORRESPONDENTS.

B. F. & S. (amounts should have been stated).—J. S., J. J., W. L. E., W. C. G. (below our limit).—R. R. (too late: next week).

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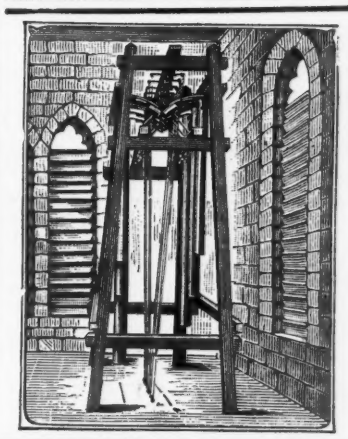

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MAR. 3rd	Prof. J. A. FLEMING, M.A. D.SC. F.R.S	"The Work of the Electric Current." With Lantern Illustrations & Experiments.	Rt. Hon. LORD REAY, G.C.S.I. LL.D.
10th	Prof. BANISTER FLETCHER, F.R.I.B.A.	"Is a National 20th Century Style of Architecture probable?" With Views, Plans, & Lantern Illustrations.	SIR JOHN LUBBOCK, Bart. M.P. D.C.L. LL.D.
17th	Prof. J. M. THOMSON, F.I.C. F.R.S.E. F.C.S.	"The Chemistry of certain Metals used in Building Construction."	SIR F. ABEL, Bart. K.C.B. D.C.L. F.R.S.
24th	J. WRIGHT CLARKE, Esq.	"Practical Plumber's Work." With half and full-sized Diagrams. Full size models. Plumbing on roof, and other Plumber's work.	Ald SIR STUART KNILL, Bart. LL.D.

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ADDITIONAL CAPITAL.—Manufacturers, Merchants, or Industrial Limited Companies in want of ADDITIONAL CAPITAL can obtain same through a firm of Financial Agents at Bank rate of Interest. No commission charged unless business results. Principals or their Solicitors only treated with.—Address, CAPITAL, 1,540, care of Messrs. Deacon's, Leadenhall-street,

ARCHITECT and SURVEYOR'S PRACTICE WANTED.—Advertiser wishes to PURCHASE well-established PRACTICE in town or the provinces, and is willing to pay a good premium for same. Good opportunity for one wishing to retire.—Address, with full particulars, which must bear strictest investigations, Box 202, Office of "The Builder."

PARTNER WANTED in a good Builder's Business in this prosperous town. Capital required, 500*l.*—Write, SYD. SAWBRIDGE, High-street, Southampton.

PARTNER WANTED with £500.—An experienced man in Building Trade REQUIRES a PARTNER. Good opening for an energetic man. First-class references exchanged. Inquiry courted.—T. H. E. Lett's Library, Crouch Hill, London, N.

PARTNERSHIP.—London Architect in good practice, requiring assistance, would take a PARTNER. Must be a first-rate Draughtsman, and fond of work.—State experience to Box 219, Office of "The Builder."

SITUATION with view to PARTNERSHIP WANTED by young Man, articled in large Builder and Contractor's office. Twenty years in present position (managing clerk). Thoroughly conversant with every department of trade. Well up in quantities, good estimator, accountant, usual office routine. Can introduce capital in sound Builder's business.—Address, Box 216, Office of "The Builder."

THE COUNCIL of the ROYAL INSTITUTE of BRITISH ARCHITECTS are prepared to receive APPLICATIONS for the APPOINTMENT of SECRETARY.
Applicants must be gentlemen of culture and literary attainments, with a knowledge of architecture, but not necessarily architects.
Proficiency in French essential and German desirable.
Age not less than about 30, or more than 45.
The Secretary will be required to devote his whole time to his official duties. Salary 400*l.* per annum.
Full particulars can be obtained at the offices of the Institute, No. 9, Conduit-street, Hanover-square, London, W. Any canvassing will disqualify. Applications, addressed to "The Hon. Secretary, R.I.B.A," No. 9, Conduit-street, W. must be delivered not later than MARCH 20th.

VESTRY of the PARISH of ST. JOHN, HAMPSTEAD.
SANITARY INSPECTOR WANTED.
The Vestry REQUIRE an additional SANITARY INSPECTOR for a part of the above-named Parish, and hereby invite applications for the office from persons not more than 35 years of age. Candidates must be competent to discharge all the duties of a Sanitary Inspector under the Public Health (London) Act, 1891, the regulations of the Local Government Board, known as the Sanitary Officers' (London) Order, 1891, the Metropolis Local Management Acts, the Sale of Food and Drugs Acts, and other kindred Acts. He must hold the Certificate of the Sanitary Institute, and will be required to devote the whole of his time to the duties of the office.
Salary 110*l.* per annum, rising by annual increments of 10*l.* to 140*l.*
Applications in own handwriting, stating age, previous experience, and present employment, to be sent in to me by MONDAY, 1st MARCH next, endorsed "Sanitary Inspector," and accompanied by copies of three testimonials of recent date.
The appointment will be made on THURSDAY, 18th MARCH next. Selected candidates will receive notice as to attendance.
By order,
ARTHUR P. JOHNSON,
Vestry Clerk.
Vestry Hall, Hampstead,
February 9th, 1897.

CITY of COVENTRY.
CLERK OF WORKS.
The Watch Committee of the City of Coventry are about to APPOINT a CLERK of WORKS for the rebuilding and enlargement of the Police Offices and other buildings in Saint Mary's-street in the City.
The person appointed will be required to enter upon his duties on the 14th day of MARCH next and to devote his whole time to them.
Salary, 4*l.* a week.
Applications, with copies of testimonials, to be delivered at my Office, 10, Hay-lane, Coventry, not later than TWELVE o'clock noon on MONDAY, the 1st MARCH next.
Personal canvassing will be a disqualification.
LEWIS BEARD,
Town Clerk.
Coventry,
February 16th, 1897.

ARCHITECT'S ASSISTANT.—WANTED at once, by a firm of Civil Engineers, Architects and Surveyors in China, a thoroughly competent ARCHITECT'S ASSISTANT. Good designer and draughtsman. Working and detail drawings. Good practical knowledge. Aged 25 to 30. Unmarried. Salary, 400*l.* First-class passage out and home.—Address full particulars of qualifications and experience to ARCHITECT, care of The Porter, Gresham House, London, E.C.

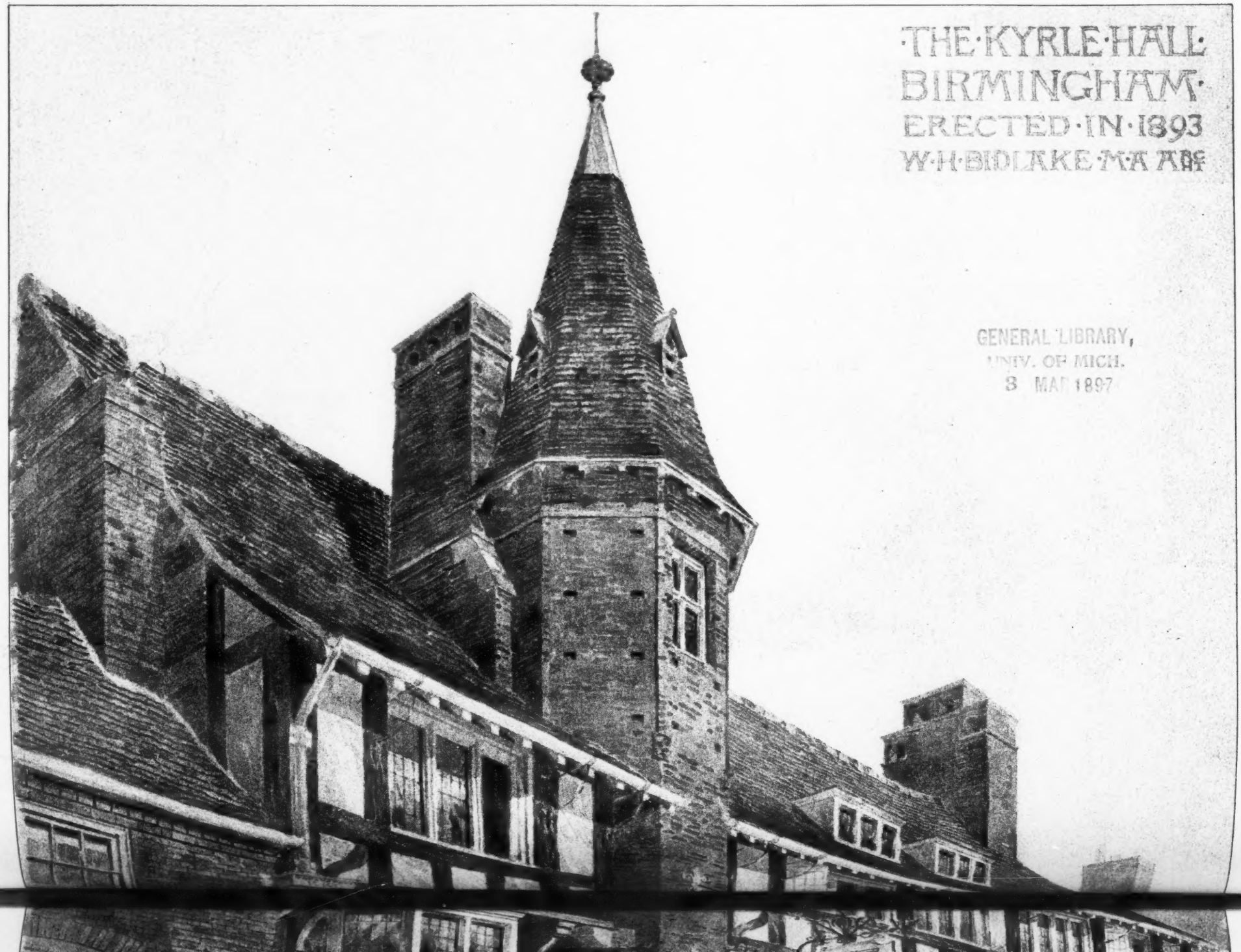
ASSISTANT WANTED in Architect and Surveyor's office. Well qualified.—State age, experience, and salary, to Box 254, Office of "The Builder."

ARCHITECT and SURVEYOR'S ASSISTANT WANTED. Experienced in specifications and estimates for improvements, repairs, and dilapidations, and in supervising works; and a good Draughtsman. State age, experience, where gained, and salary required. Applications not explicitly answering all inquiries will be disregarded.—Box 293, Office of "The Builder."

TO SURVEYOR'S ASSISTANTS.—WANTED in the office of a large London Builder, a GENTLEMAN to ASSIST in estimating and the adjustment of accounts with surveyors.—State age, experience, and salary, to Box 295, Office of "The Builder."

JUNIOR ASSISTANT (smart) WANTED by Quantity Surveyor. Must be well up in squaring and billing, also able to trace neatly.—Apply by letter only, stating age, experience, references, and salary, to HENRY SMITH, 113, Finsbury Pavement, E.C.

MOSAIC.—WANTED a thoroughly competent DESIGNER, who is able to take entire charge, estimating, workmen, &c. State age, experience, terms, &c. to Box No. 294, Office of "The Builder."



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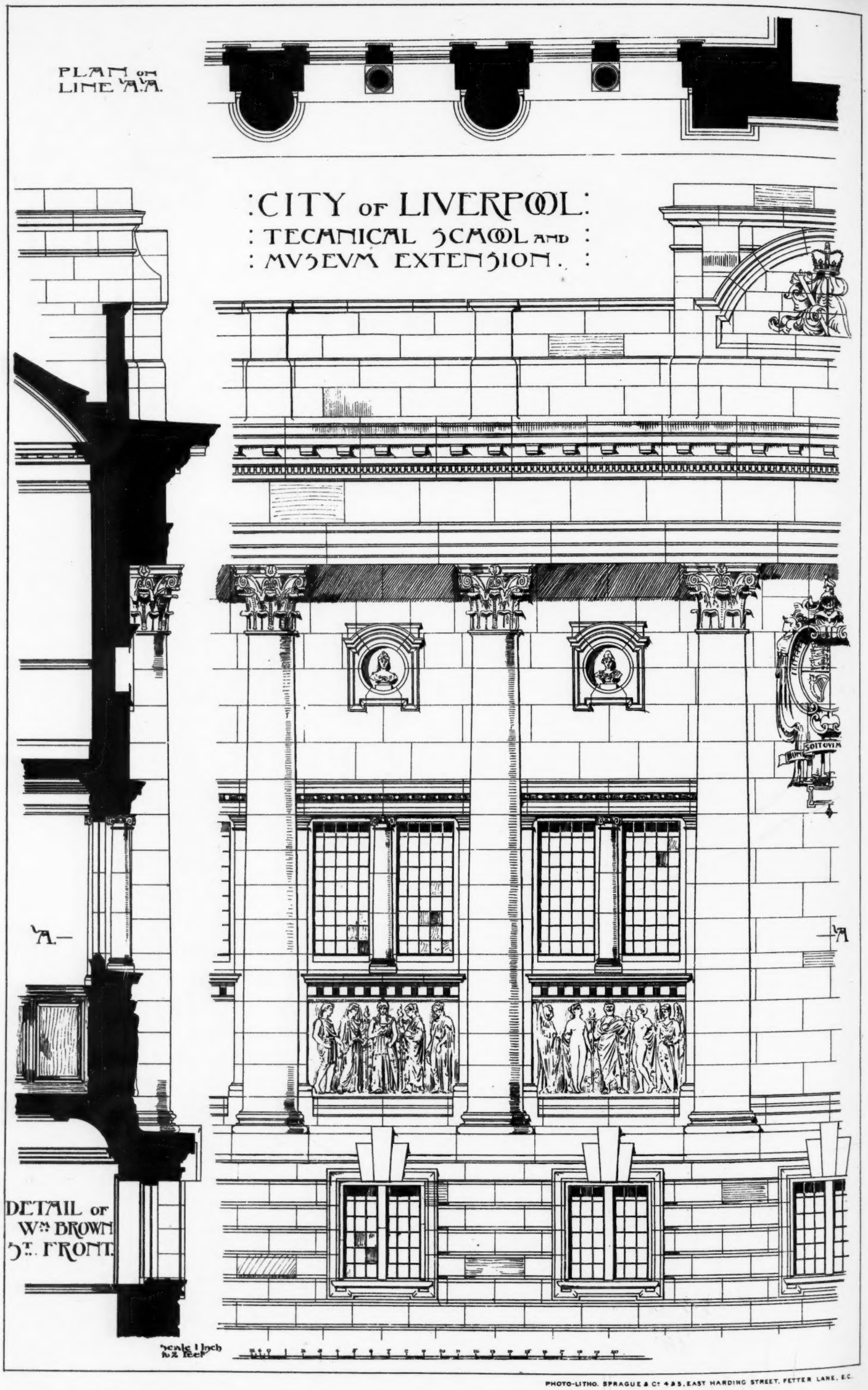

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COMPETITION DESIGN FOR LIVERPOOL TECHNICAL SCHOOL AND MUSEUM EXTENSION.

DETAIL ELEVATION.

By Mr. H. T. Hare, A.R.I.B.A., and Mr. Thomas Davison, A.R.I.B.A.

THE BUILDER, FEBRUARY 20, 1897.

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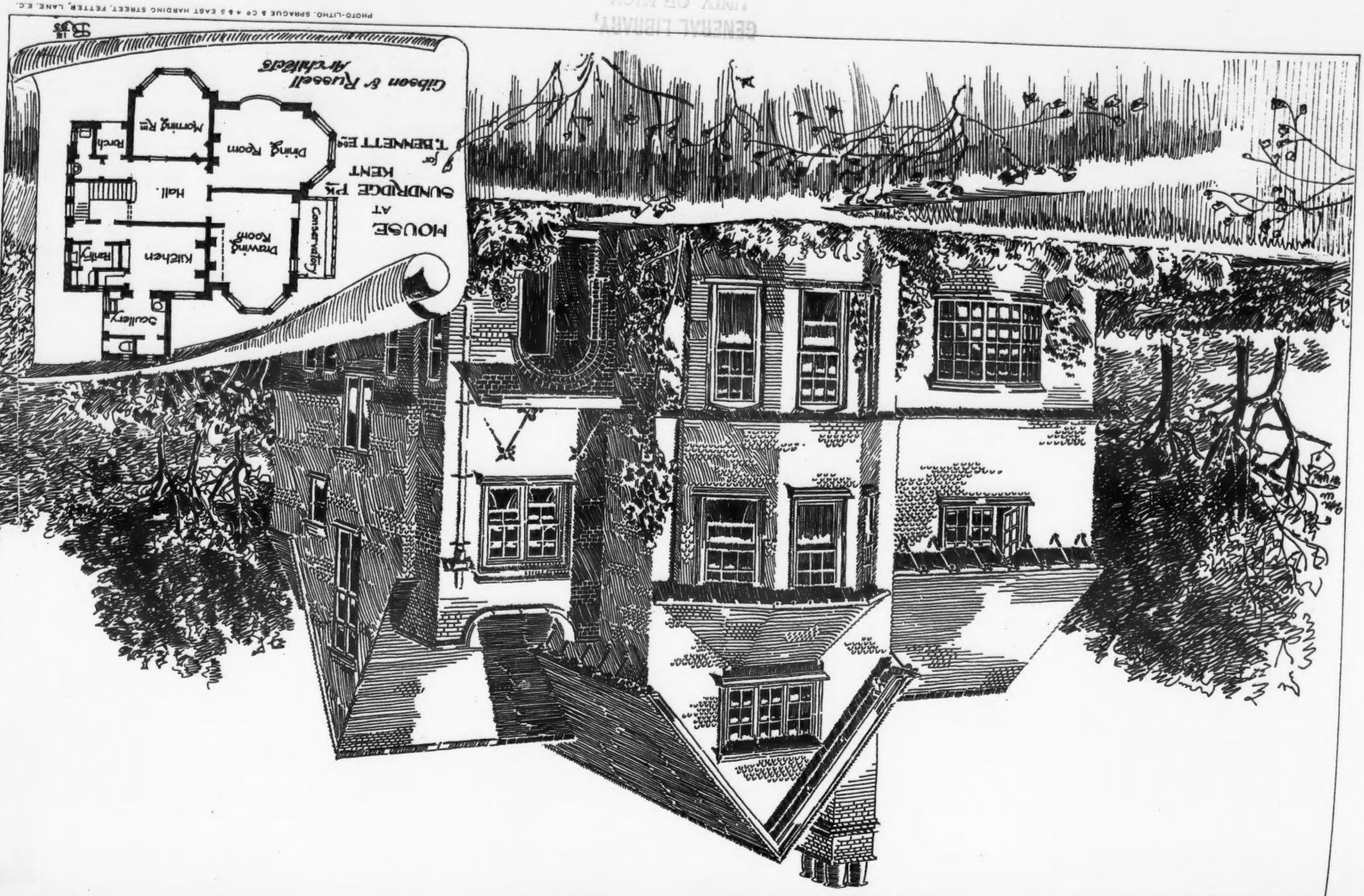

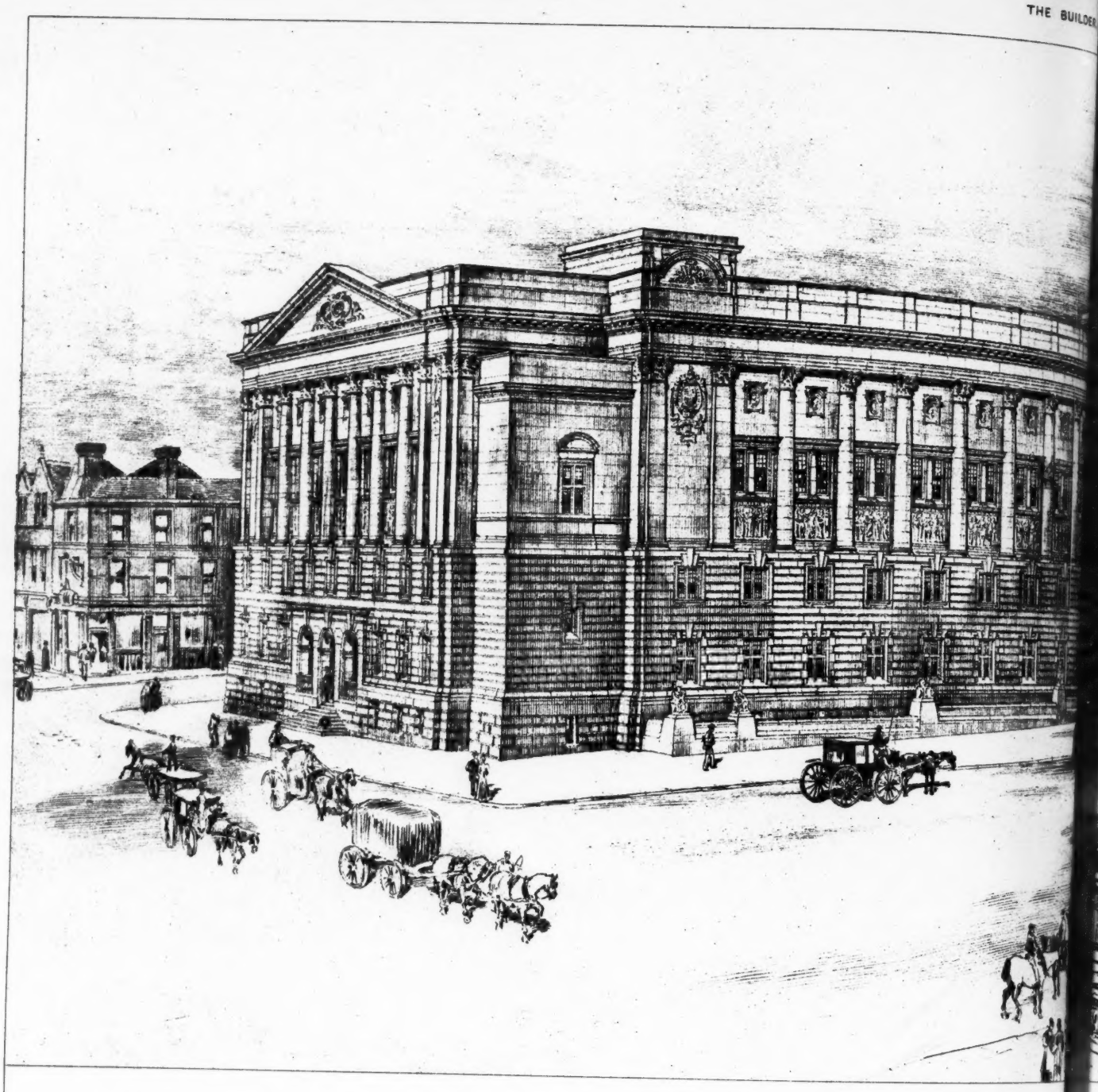

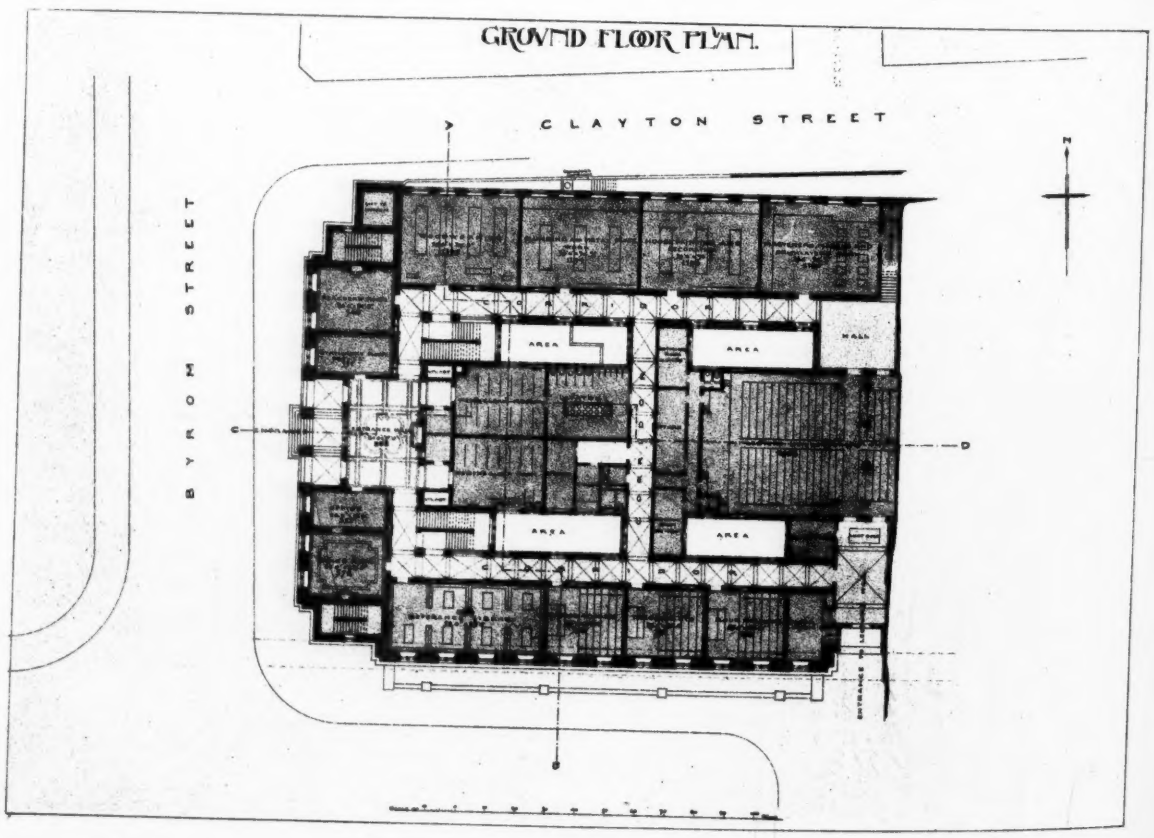

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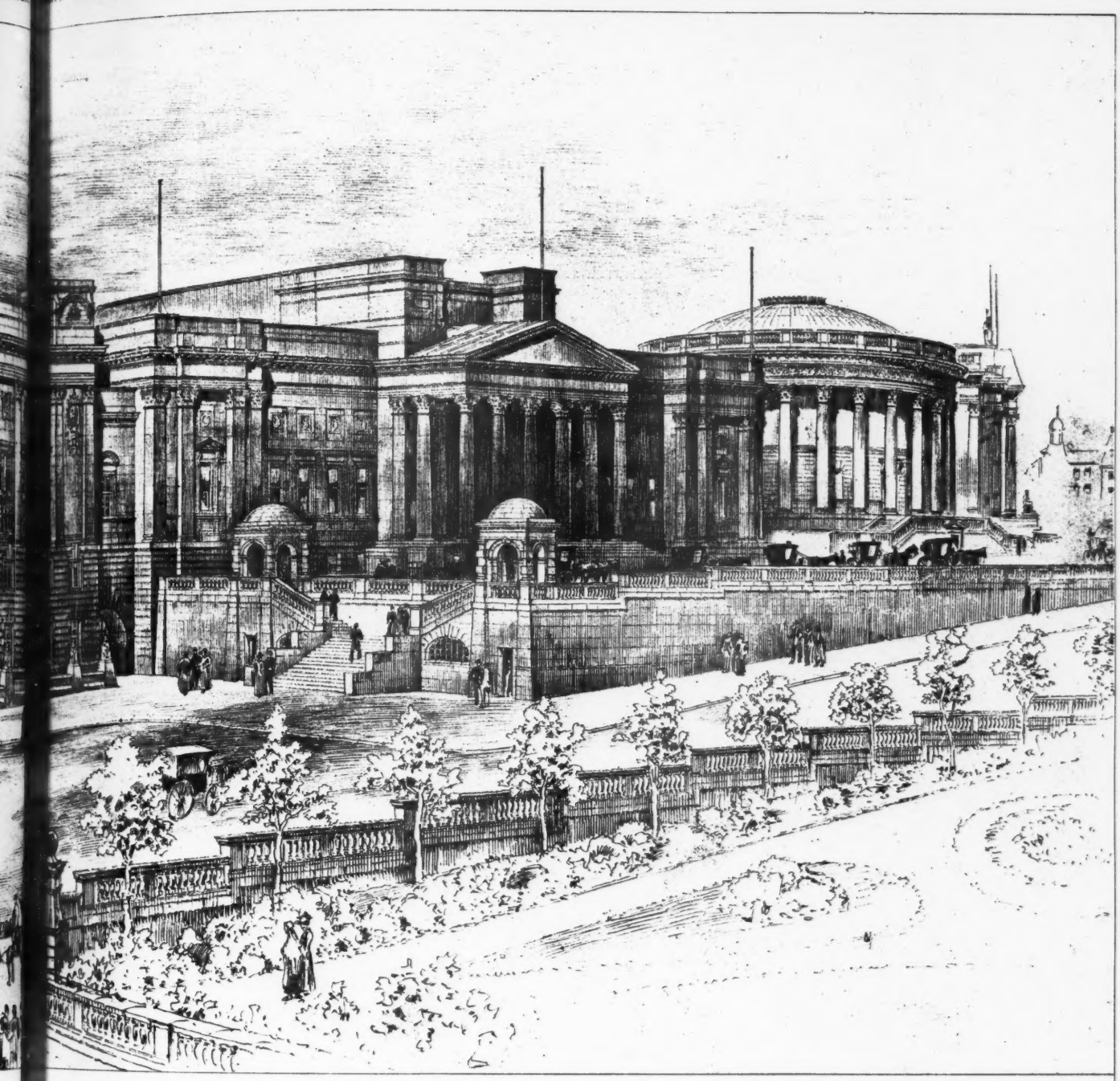

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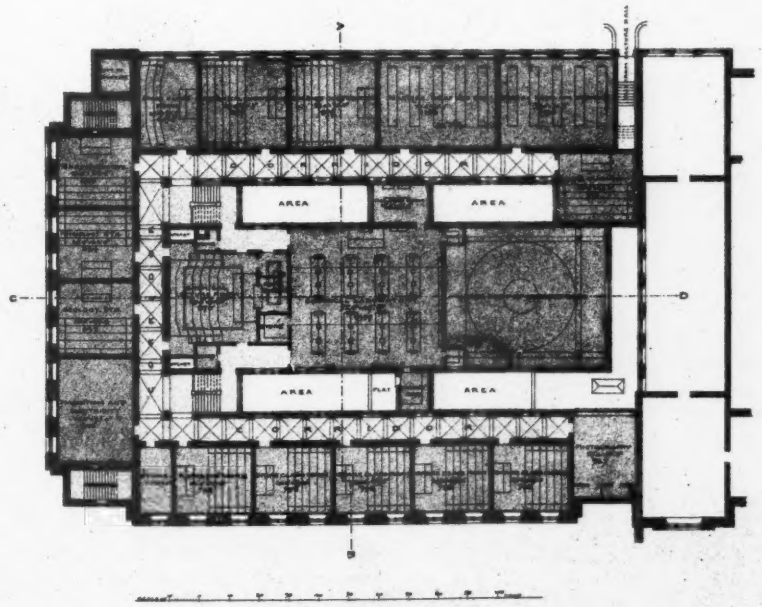

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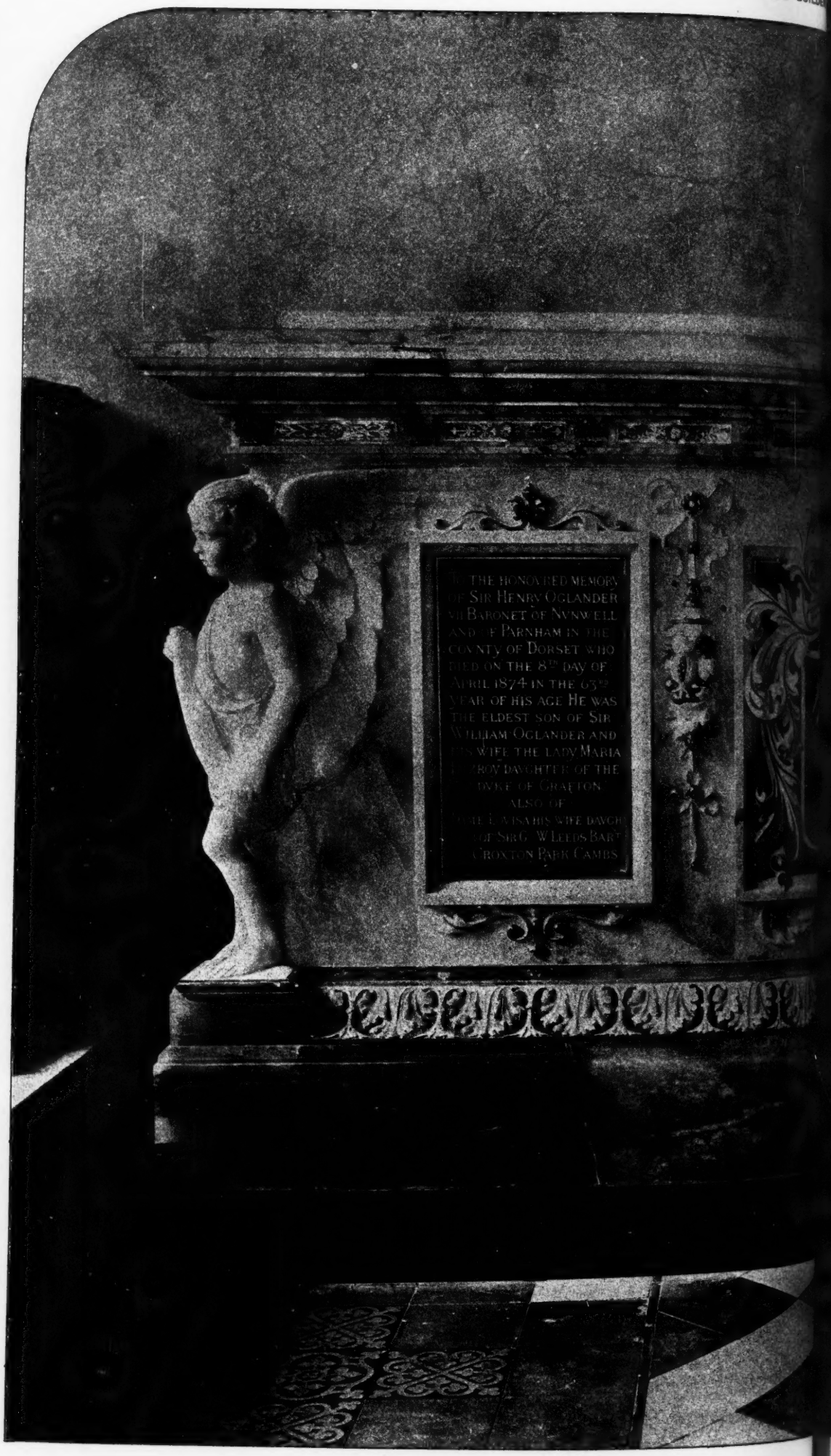
IN THE HONOVRED MEMORY
OF SIR HENRY OGLANDER
VII BARONET OF NVNWELL
AND OF PARNHAM IN THE
COVNTY OF DORSET WHO
DIED ON THE 8TH DAY OF
APRIL 1874 IN THE 63RD
YEAR OF HIS AGE HE WAS
THE ELDEST SON OF SIR
WILLIAM OGLANDER AND
HIS WIFE THE LADY MARIA
THIRD DAVGHTER OF THE
DVKE OF GRAFTON
ALSO OF
THE LADY HIS WIFE DAVGH
OF SIR G. W LEEDS BART
CROXTON PARK CAMBS

MEMORIAL TOMB TO SIR HENRY OGLANDER, BRAD URCH, IS

DESIGNED BY MR. JAS. C. POWELL CULPTURE

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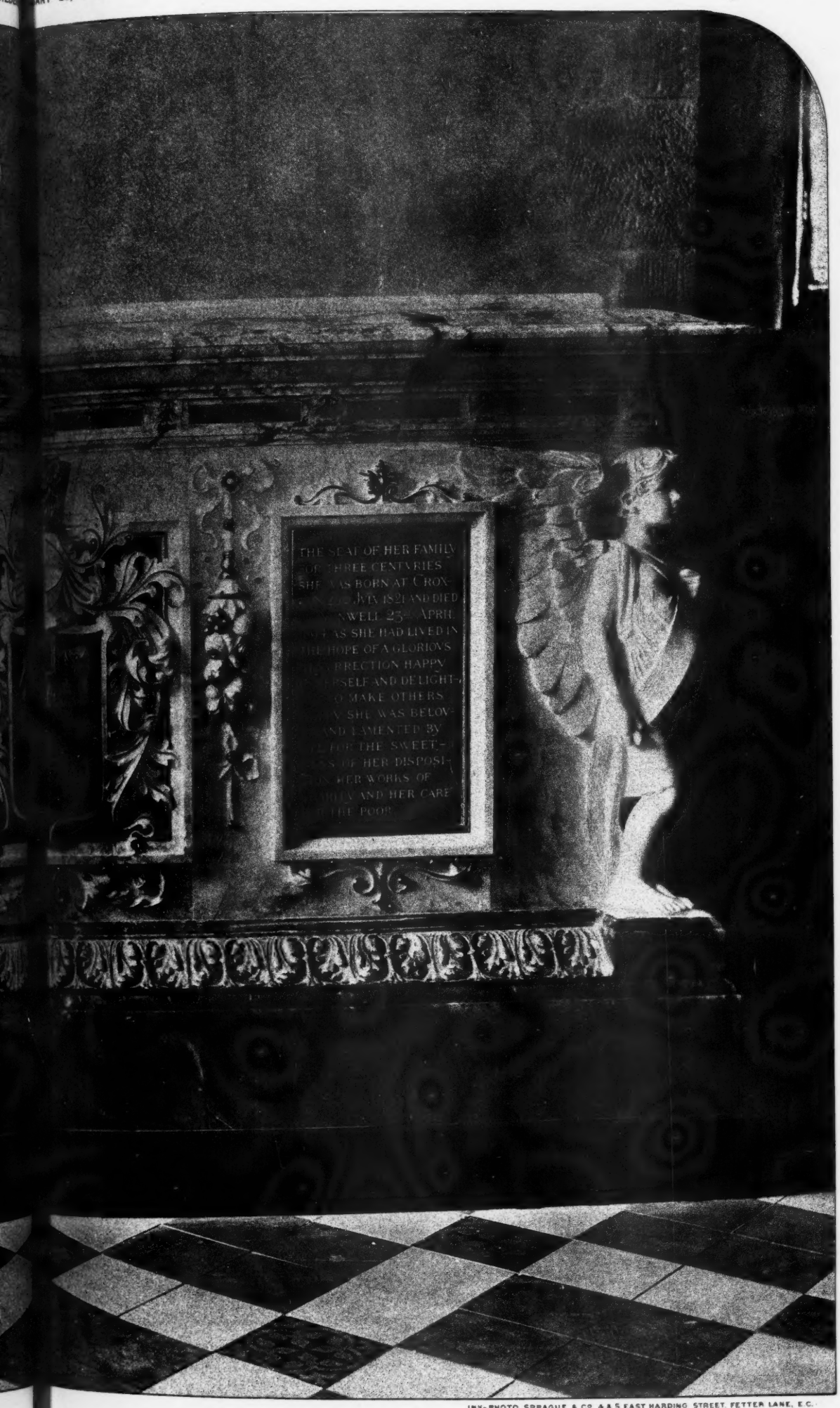

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